Columbia Gas Transmission SM

1700 MacCorkle Ave SE
Charleston WV 25314

PO Box 1273
Charleston WV 25325-1273

304 357 2000

July 29, 1999

Mr. Joseph Arena
Project Coordinator
U.S. Environmental Protection Agency
Mailcode 3HW33
1650 Arch Street
Philadelphia, PA 19103

RE: RESPONSES TO U.S. EPA'S CHARACTERIZATION REPORT COMMENTS – Hagan Compressor Station, Ohio

Dear Mr. Arena:

Columbia Gas Transmission Corporation (Columbia) has reviewed comments prepared by the U.S. Army Corps of Engineers (ACOE) on behalf of the U.S. Environmental Protection Agency (U.S. EPA) Characterization Report (CR) for the Hagan Compressor Station. No comments have been received from the State of Ohio.

To facilitate the U.S. EPA's review of Columbia's proposed responses, the ACOE's comments are repeated in boldface type below, followed by Columbia's responses.

Comment #1:
Page 58
Note 1; Label: Gloria A. Markovci; Date: 06/21/1999 11:50:41 AM
Section 5.0, Conclusions: Please correct "will be" to "was" at the end of the sentence.

Response: This response has been noted and the change has been incorporated into the CR.

Comment #2:
Page 67
Note 1; Label: Gloria A. Markovci; Date: 06/21/1999 11:46:25 AM
Appendix B, Comprehensive Analytical Results: Please explain the varying detection limits for petroleum hydrocarbons analysis for the following samples: ASB001-70001, ASB001-70002, ASB002-70002, ASB008-70001, and ASB011-70001.

Response: The petroleum hydrocarbon analysis for several of the samples collected at this site were performed at a dilution in order to bring the concentrations of petroleum hydrocarbons in these samples within the analytical range of the instrument. The petroleum hydrocarbon analysis of samples ASB001-70001, ASB001-70002, and ASB008-70001 was performed at a 25-fold dilution; of sample ASB011-70001 was performed at a 50-fold dilution; of sample ASB002-70002 was performed at a two-fold dilution; and of sample ASB004-70002 was performed at no dilution.

Columbia requests that the U.S. EPA approve the Hagan Compressor Station Characterization Report. If you have any questions or comments, please call me at (304) 357-3760.

Sincerely,

Marc B. Okin, P.G.
Team Leader
Environmental Affairs, Remediation

cc: Edward Yakuchev, US ACOE (4 copies)
Dave Meadows, US ACOE – Huntington (1 copy)
Ralph McGinnis (2 copies)

Columbia Gas Transmission

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304 357 2000

5 May 1999

Mr. Joseph Arena
Project Coordinator
U.S. Environmental Protection Agency
Mailcode 3HW33
1650 Arch Street
Philadelphia, PA 19103

RE: Characterization Reports for WSL Facilities in Ohio

Utica Compressor Station
Hagan Compressor Station
Troxel Tank Farm
Morgan Compressor Station
Swan Compressor Station

Dear Mr. Arena:

In accordance with Section 8.6(c)(2) of the Administrative Order on Consent (AOC), Columbia Gas Transmission Corporation (Columbia) submits the characterization reports for the above referenced facilities.

Per our discussions, the reports are being transmitted in an electronic format on a CD-ROM. Instructions on how to start the CD are on the label. A "readme.txt" file on the CD has more detailed instructions on how to view the reports. If you have any questions, please contact either Marc Okin at (304) 357-3760 or me at (304) 357-3772.

Sincerely,

Joe P. Ferry, P.G.
Environmental Affairs, Remediation

Enclosure

cc: Edward Yakuchev (ACOE) [4 copies]
Dave Meadows (ACOE – Huntington) [1 copy]
Ralph McGinnis (Ohio) [2 copies]

April 1999

22603-HAG-0000-06000

(Rev. 1, July 21, 1999)

CHARACTERIZATION REPORT
FORMER HAGAN COMPRESSOR STATION
NOBLE COUNTY, OHIO

Prepared for

COLUMBIA GAS TRANSMISSION CORPORATION
Environmental Affairs-Remediation
P.O. Box 1273
1700 MacCorkle Avenue, SE
Charleston, West Virginia

Prepared by

Baker Environmental, Inc.
Coraopolis, Pennsylvania

Former Hagan Compressor Station
Characterization Report

Noble County, Ohio

April 14, 1999

Prepared for Columbia Gas Transmission Corporation
By:

BAKER ENVIRONMENTAL, INC.

Principal in Charge

Manager in Charge

ENVIRONMENTAL STANDARDS, INC.

Data Management and Verification Manager

Data Validation Manager

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LIST OF ACRONYMS

AMSL	Above Mean Sea Level
AOC	Administrative Order By Consent
ARARs	Applicable or Relevant and Appropriate Requirements
ART	Air Receiver Tank
ASA	Active Screening Assessment
AT	Aboveground Tank
bgs	Below Ground Surface
BLS	Below Land Surface
BS	Blank Spike
BSD	Blank Spike Duplicate
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CAL	Characterization Action Level
CAS	Compressed Air System
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
CLP	EPA Contract Laboratory Program
cm	Centimeter
Columbia	Columbia Gas Transmission Corporation
CR	Characterization Report
CS	Compressor Station
CWP	Characterization Work Plan For Work Scope List Facilities
DRO	Diesel Range Organics
FRW	Facility Review Worksheet
FWS	United States Fish and Wildlife Service
gpm	Gallons Per Minute
GIS	Geographic Information Systems
GPS	Global Positioning System
GRO	Gasoline Range Organics
HASP	Health and Safety Plan
Hg	Mercury
HP	Horsepower
HSL	Hazardous Substances List
IDW	Investigation Derived Waste
LCS	Laboratory Control Spike
LRP	Liquid Removal Point

LIST OF ACRONYMS
(Continued)

MCLs	Maximum Contaminant Levels
MDL	Method Detection Limit
MEBC	Maximum Encountered Background Concentration
ug/kg	Micrograms per Kilogram
ug/l	Micrograms Per Liter
mg	Milligrams
mg/kg	Milligrams Per Kilogram
mg/L	Milligrams Per Liter
MMS	Mercury Metering Station
MMSWP	Mercury Measuring Station Work Plan
MS	Matrix Spike
MSD	Matrix Spike Duplicate
msl	Mean Sea Level
NWI	National Wetland Inventory
OAC	Ohio Administrative Code of 1980
ODNR	Ohio Department of Natural Resources
OEPA	Ohio Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
OVA	Organic Vapor Analyzer
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PHCs	Petroleum Hydrocarbons
PID	Photoionization Detector
ppb	Parts Per Billion
ppm	Parts Per Million
%	Percent or Percentage
PRA	Potential Release Area
PRRL	Project Required Reporting Limit
PSA	Passive Screening Assessment
PVC	Polyvinyl Chloride
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RAC/FR	Response Action Completion/Final Report
RAWP	Response Action Work Plan
RBC	Risk-Based Concentrations
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
RPM	Revolutions Per Minute

LIST OF ACRONYMS
(Continued)

SAP	Sampling And Analysis Plan
SARA	Superfund Amendments and Reauthorization Act of 1986
SHERP	Safety, Health, and Emergency Response Plan
SOP	Standard Operating Procedure
SVOCs	Semivolatile Organic Compounds
TAL	Target Analyte List
TBC	To Be Considered
TLV	Threshold Limit Value
TPH	Total Petroleum Hydrocarbons
TSCA	Toxic Substance Control Act
USEDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank (regulated)
UT	Underground Tank
VOCs	Volatile Organic Compounds
WSL	Work Scope List

EXECUTIVE SUMMARY

This Characterization Report (CR) presents the analytical results, conclusions, and recommended response actions resulting from the implementation of the United States Environmental Protection Agency (USEPA) approved November 1996, Sampling and Analysis Plan (SAP) developed for the Former Hagan Compressor Station (CS). The CS is located in Noble County, Ohio.

The objective of this site characterization was to identify the nature and extent of site-related constituents, identify potential receptors, evaluate whether site-related constituents, if present, pose any risk, propose cleanup levels, and develop the most appropriate response actions, including no action, for cleanup of such site-related constituents.

A total of 31 investigative samples were collected; 13 surface and 18 sub-surface soil samples. In addition, a total of 12 quality control samples were also collected at the Former Hagan Compressor Station. The sampling activities were performed on February 7, 1997.

Based on the results of this characterization effort, no further action is recommended for the following Potential Release Areas (PRAs) because Characterization Action Levels (CALs) and/or site specific background levels were not exceeded.

PRA #1	1,000-Gallon Underground Tank (UT) (pipeline liquid)
PRA #2	Non-sampled PRA due to proximity of existing CS structures restricting access
PRA #3	Blowdowns/Vents
PRA #4	Oil Pump Area
PRA #5	Air Tank/Old Pad Area
PRA #6	Makeup Oil Aboveground Tank (AT) (55 gallon)

Since there were no CAL and/or background exceedances, there is no need to discuss those PRAs in detail, as that will be presented in Section 4.0.

1.0 INTRODUCTION

1.1 Background

This Characterization Report (CR) presents the analytical results, conclusions, and recommended response actions resulting from the implementation of the USEPA approved November 1996, Sampling and Analysis Plan (SAP) developed for the Former Hagan Compressor Station (CS). The CS is located in Noble County, Ohio.

The SAP was prepared pursuant to Section 8.6(b)(2)(d) of the Administrative Order on Consent (AOC) between Columbia Gas Transmission Corporation (Columbia) and the USEPA and was written to conform to the requirements specified in the Characterization Work Plan for Work Scope List Facilities (CWP) dated June 1996. The intent of this location-specific SAP was to provide a basis for determining the nature and extent of site-related constituents at the CS, if any. The SAP was generally implemented in accordance with the protocols and methods identified in the CWP, including Standard Operating Procedures (SOPs) contained in Appendix A of the CWP dated June 1996. Deviations from the approved SAP required by field conditions are discussed in Section 3.1 of this report.

The SAP for this site included analyses for total petroleum hydrocarbons (TPH) as a characterization tool. However, subsequent to approval of the SAP, the USEPA and Columbia have agreed that petroleum hydrocarbon releases, if any, should be characterized through the analyses of the hazardous components that may be in Columbia's petroleum products rather than TPH. Subsequently, Columbia has met with or corresponded with several states, including Ohio, where evolving voluntary action legislation no longer relies on characterization of petroleum hydrocarbon releases using TPH analyses. As a result, this CR will report the results of TPH analyses; however, response actions will be developed primarily based on components analyses, and if appropriate, the visual observation of free phase product or elevated photoionization detector (PID) readings rather than on TPH levels.

1.2 Purpose and Objectives

In accordance with Section 9.1.2 of the CWP, the purpose and objective of the characterization is to identify the nature and extent of site-related constituents, identify potential receptors, evaluate whether site-related constituents (if present) pose any risk, propose cleanup levels, and develop the most appropriate response actions (including no action) to manage detected site-related constituents.

1.3 Facility Description

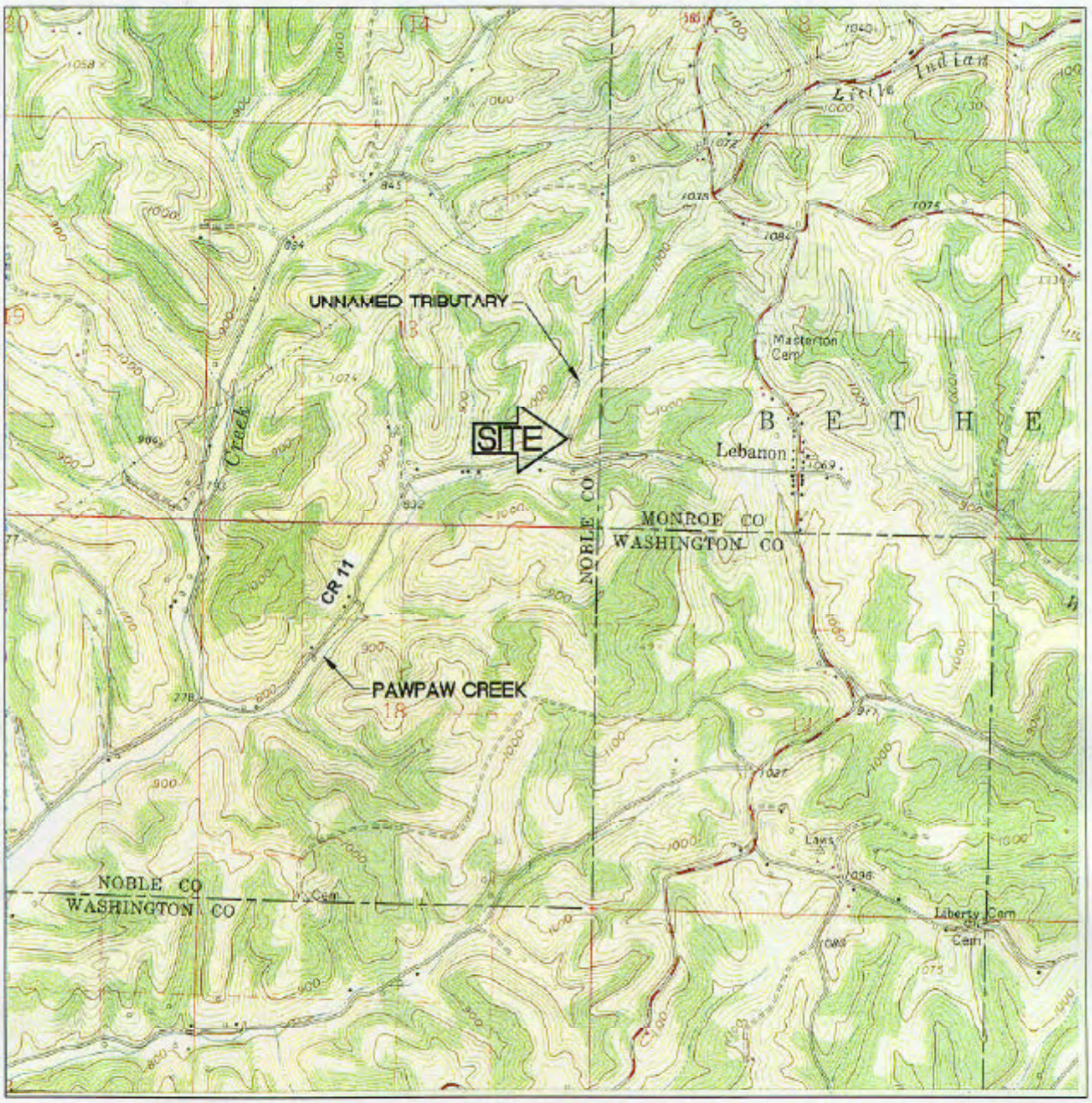
The Former Hagan CS is located on a gated private road off of County Road 11 near the southeastern corner of Noble County (Figure 1-1). The site is located approximately 1.6 miles west of the town of Lebanon, Ohio. The less than one acre (0.92 acres) CS has an operating portion (fenced) of less than one quarter acre (Figure 1-2).

The CS is bounded on the northwest by an unrelated, abandoned oil/gas well. One unnamed tributary (adjacent to the CS, 50 feet to the west) flows south into Pawpaw Creek. Pawpaw Creek flows to the southwest. The upper portion of Pawpaw Creek is located approximately 250 feet south of the CS. Woodlands comprise the remaining CS features, being present in all directions from the CS. The compressor station is located in a steep valley with the valley side walls on the northwest and southeast. The CS is an unmanned facility.

The Former Hagan CS began operation circa 1983 and was retired in July 1992. The CS contains a 360-horsepower Ajax compressor engine, compressed air system (CAS), Pipeline Liquid UT (1,000 gallons), Makeup Oil AT (55 gallons), oil pump area, and vertical liquid removal points (LRPs). The station has no on-site water source or sewer system.

The characterization process, as set forth by the CWP (June 1996), is a source-driven program based on the identification of potential release areas (PRAs) at a site and their subsequent characterization. PRAs are identified by completing a Facility Review Worksheet (FRW). The FRW forms the basis of the work conducted under the SAP. The Former Hagan CS FRW is provided as Appendix A of this report. The following PRAs were identified during completion of the FRW:

- 1 UT (Pipeline Liquid, 1,000 gallon) (PRA #1)



SOURCE: U.S.G.S. 7.5 MINUTE
TOPOGRAPHIC MAP
DALZELL QUADRANGLE, OHIO

2000 0 1000 2000
1 inch = 2000 ft.

QUADRANGLE LOCATION

Baker
Baker Environmental, Inc.

FIGURE 1-1
SITE LOCATION MAP
FORMER HAGAN COMPRESSOR STATION

COLUMBIA GAS TRANSMISSION CORPORATION
NOBLE COUNTY, OHIO

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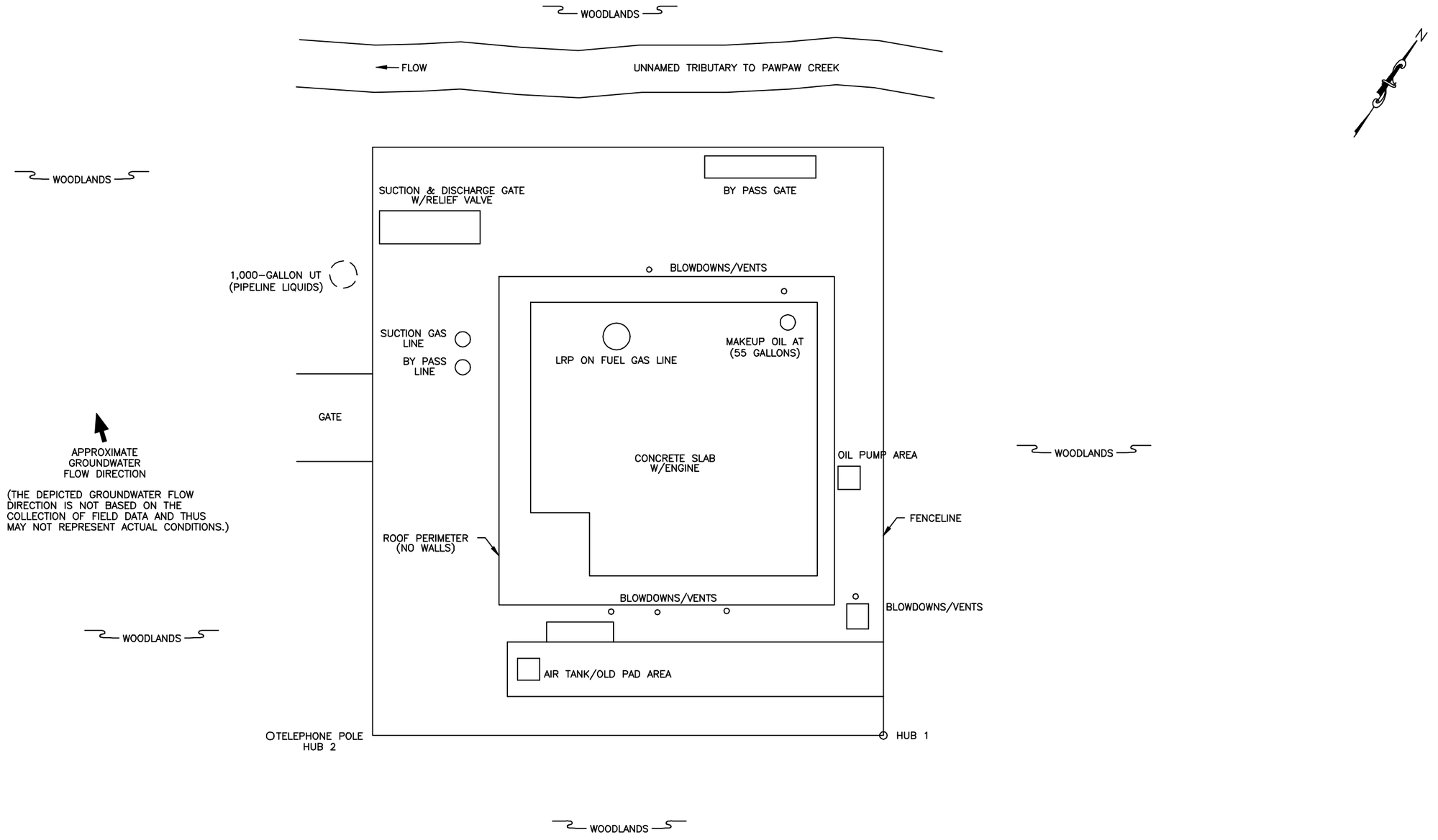

20 0 10 20 40

1 inch = 20 ft.

Baker Environmental Inc.

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FIGURE 1-2
SITE FEATURES MAP
FORMER HAGAN COMPRESSOR STATION

- 1AT (Fuel Gas, 30 gallon) (PRA #2 non-sampled PRA due to proximity of existing CS structures);
- 1 AT (Makeup Oil, 55 gallon) (PRA #6);
- Blowdowns/Vents (PRA #3);
- Oil Pump Area; and (PRA #4);
- Air Tank/Old Pad Area (PRA #5)

1.4 Summary of Previous Investigations and Response Actions

No previous investigations, or remedial actions have been performed at the Former Hagan CS.

2.0 ENVIRONMENTAL SETTING

2.1 Physical Setting

The operating portion of the Former Hagan CS (Figure 1-2) occupies less than one-quarter acre. It is a rectangular area approximately 107 feet by 93 feet surrounded by a 4-foot high wire fence. The property on which the station is located is in an undeveloped stream valley. Topographic relief in this area is moderately steep, however, the immediate area around the site is relatively flat. The station appears to be in a flood-prone area associated with a small unnamed tributary to Pawpaw Creek approximately 50 feet west of the compressor slab. Pawpaw Creek (located approximately 250 feet to the south) flows in a general southwest direction. The base levels of the unnamed tributary adjacent to the CS is approximately 860 feet above mean sea level (MSL), while ridge tops range from 1,000 feet to more than 1,100 feet MSL. The compressor station is approximately 1,000 feet above MSL (USGS, 1984).

The ground surface at the site is relatively flat, but slopes slightly decrease toward the unnamed tributary, and increase moderately to the east, and west beyond the unnamed tributary. Land use in the vicinity of the site (within 1,000 feet) includes an unrelated, abandoned oil/gas well, the unnamed tributary, and woodlands in all directions.

2.2 Climate

The portion of Ohio in which the CS is located receives a mean annual precipitation of approximately 38 inches. Prevailing winds are generally from the south-southwest. Temperatures vary widely, with average lows during the winter months reaching 20 degrees Fahrenheit to highs during the summer months reaching 83 degrees Fahrenheit. In general, the greatest levels of precipitation occur in the spring while the lowest levels occur in late summer (Soil Survey of Noble County, Ohio, 1990).

2.3 Surface Water Hydrology

The station appears to be in a flood-prone area associated with the small unnamed tributary to the west. This unnamed tributary flows southwest to Pawpaw Creek, which then flows southwest into Duck Creek, then to the Ohio River (DeLorme, 1995). Surface drainage flows westerly toward the unnamed tributary. However, there does not appear to be a predominant drainage pathway from the compressor station toward the unnamed tributary.

2.4 Geology and Soils

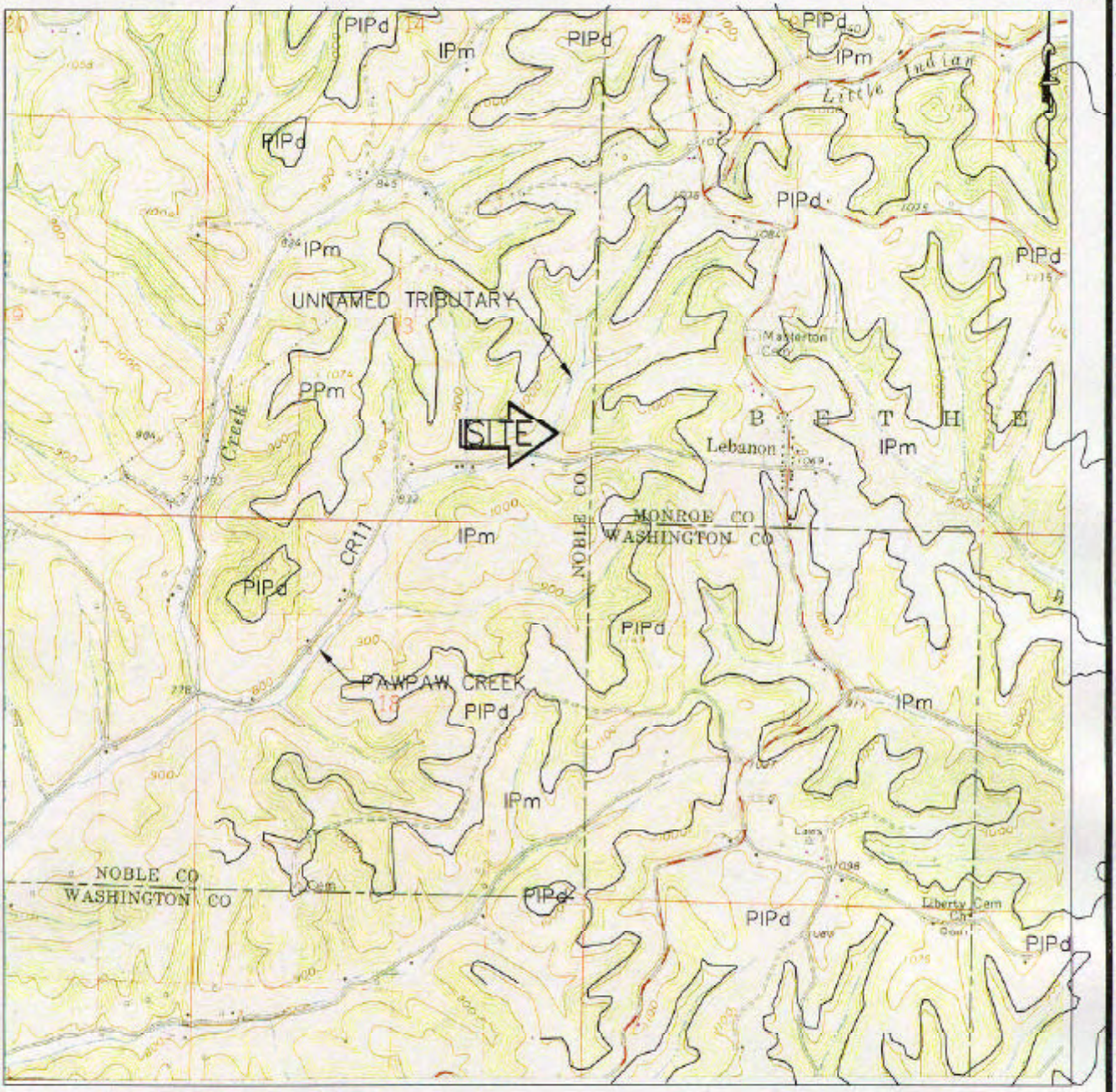
The Former Hagan CS is located on the unglaciated, dissected Allegheny Plateau Physiographic Province (Figure 2-1). The bedrock of this region is sedimentary, consisting of Pennsylvanian System/Monongahela Group bedrock. This bedrock can be greater than 350 feet in thickness and consists mainly of shale, siltstone, limestone, sandstone, and coal.

Soils at the Hagan CS are identified as the Gilpin silt loam series, 35 to 75 percent slopes (GdF) of the Lowell-Gilpin Association. This series consists of moderately deep, very steep, well drained soils on hillsides, deep ravines, slips, and benches (Soil Survey of Noble County, Ohio: 1990).

2.5 Hydrogeology and Groundwater Quality

In valley bottoms, useable quantities of groundwater are generally obtained from both shallow wells in unconsolidated deposits and/or deeper wells installed into bedrock formations. In other topographic areas, wells completed in bedrock or springs are a source of potable water supplies.

A high ridge in the central part of the county is the divide between drainage to the Muskingum River and drainage to the Ohio River. For the location of the compressor station, drainage is to the Ohio River by Duck Creek and its three main branches; East, Middle, and West Forks. Potable groundwater in the area occurs in the alternating layers of thin sandstones, limestones, and sandy shales of the Pennsylvanian system. The average yield for drilled wells is less than two gallons per minute (gpm). Average well depth is 95 feet bgs. Joints and openings along bedding planes yield most of the water in the Monongahela Formation (Walker, 1991).



UNDERLYING THE CS IS PENNSYLVANIAN SYSTEM/ MONONGAHELA GROUP BEDROCK, (CONSISTING OF SHALE, SILTSTONE, LIMESTONE, SANDSTONE, AND COAL; NONBEDDED TO MASSIVE; 350+ FEET THICKNESS)
IPm – MONONGAHELA GROUP
PIPd – DUNKARD GROUP

SOURCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC MAP DALZELL QUADRANGLE, OHIO

QUADRANGLE LOCATION

Baker Environmental, Inc.

FIGURE 2–1
SITE GEOLOGY
FORMER HAGAN COMPRESSOR STATION

COLUMBIA GAS TRANSMISSION CORPORATION
NOBLE COUNTY, OHIO

2.6 Ecological Zones

The operating portion of this compressor station occupies less than one-quarter acre; based on this small area the potential for an ecological zone that meets the definition stated in the CWP dated June 1996 (Section 3.5, Ecological Zone Identification) is unlikely. A level one ecological assessment (literature review) was performed at the CS (quarter acre area). The following summarizes the results of this review:

- An ecological zone does not exist within the operating portion of the CS; the CS's surface cover consists of gravel and maintained grassland areas. The CS is surrounded by hardwood forested areas.

- The United States Fish and Wildlife Service (FWS) National Wetlands Inventory Map (NWI) for Dazell, Ohio was reviewed and did not identify any wetlands on the site.

- The unnamed tributary west of the compressor station is an ecological resource, which may contain a small population of fish and macroinvertebrates.

- No threatened, endangered, or rare plant or animal species were identified in a review by the Ohio Department of Natural Resources and Preserves.

Based on the above information, it was concluded that the collection of further information regarding ecological zones was not necessary.

2.7 Potentially Exposed Populations

There is only one private residence within 1,000 feet of the CS. It is located south of the site on County Road 11 in the downgradient direction of the unnamed tributary. The source of the private resident's potable water supply is unknown.

Based on the nature and extent of potential releases at the CS, the primary potential migration pathways are as follows:

- Direct releases to surface and shallow subsurface soils,
- Migration of site-related constituents to the nearby unnamed tributary, and
- Migration of site-related constituents to groundwater as a result of surface and subsurface releases.

Other migration pathways such as fugitive dusts and vapors may exist, but would be expected to be minor based on the operational history of the site and nature of releases. Potentially exposed populations based on the migration pathways discussed above would include CS workers and trespassers, downstream potable water supply users, and recreational users of the unnamed tributary.

3.0 CHARACTERIZATION FIELD WORK

3.1 Investigations and Sampling Procedures and Methods

This section provides an overview of the field and laboratory characterization activities that were used during of the execution of the site characterization. The characterization activities were conducted following the requirements of the USEPA approved SAP dated November 1996. Field work was conducted on February 7, 1997. USEPA's oversight contractor, Mr. Terry Gallion of the United States Army Corps of Engineers (COE), was present during all of the field work.

Because no previous investigations or characterizations have been performed at the Former Hagan Compressor Station (CS), the SAP was prepared based on a FRW from a previous site walk through and interviews with personnel familiar with the CS's operational history. At the time the characterization was completed, the following modifications were made and have been documented in the revised FRW, provided in Appendix A, and in the field notebook.

- Addition of PRA #6, 55-gallon Makeup Oil AT. One boring was advanced to 2.5 feet bgs with soil samples collected from 0 to 1 foot bgs and 1.5 to 2.5 feet bgs.

- Elimination of proposed sampling at PRA #2, Fuel Gas 30 gallon AT and LRP on Fuel Gas Line. This PRA was found to be inaccessible because of to its proximity to other compressor equipment under the sheltered compressor engine concrete slab. As a result, sampling of a nearby blowdown associated with PRA #3 would suffice for characterization of this PRA, it was agreed by Columbia, ACOE, and Baker that this PRA would be eliminated from the characterization process.

- The addition of two more soil borings associated with two additional blowdowns for PRA #3, Blowdowns/Vents. During CS characterization field activities these two additional blowdowns were identified. At both locations, one boring was advanced to 2.5 feet bgs with soil samples collected from 0 to 1 foot bgs and 1.5 to 2.5 feet bgs.

This characterization focused on the collection of surface and shallow subsurface soil samples (less than 5 feet bgs). In all, five PRAs were evaluated, along with background and random PCB samples.

Appendix A of the CWP provides a detailed presentation of SOPs for the conduct of field activities. To facilitate review of the characterization results, the following subsections briefly describe the methodologies used to collect samples and/or other components of the field characterization effort. Also discussed are SOP modifications necessary to complete the required field effort.

3.1.1 Soils

Surface soil sampling (<1 foot bgs) at the Former Hagan CS was generally performed using stainless steel hand trowels and disposable sample spoons. Surface soil samples for PCBs and inorganics were obtained from 0 to 0.5 foot interval. Surface soil samples for volatile and semi-volatile organic compounds (VOCs & SVOCs), BTEX, and TPH were obtained from a depth interval of 0.5 to 1 foot bgs. Where gravel fill was present, soil samples were collected from native soil after removing the gravel. The thickness of the gravel fill cover varied from 0.1 to 0.5 feet. Soil sampling in the UT area required the use of a direct push (Geoprobe®) method based on sample acquisitions at depths greater than 1 foot. These samples were collected at depths consistent with the bottom of the UTs and bedrock refusal, varying between 4.6 and 6.6 feet bgs. All of the soil samples during characterization activities were logged in the field notebook. Headspace readings were collected for subsurface soil samples using a photoionization detector (PID). No other field instrumentation was utilized to screen soils.

3.2 Location and Number of Samples

Table 3-1 presents a list of samples collected during this characterization by PRA. Sample locations are shown on Figure 3-1. For each PRA, the number of samples, matrix (soil), analytes of concern and any modifications from the original SAP are presented. Modifications to the original SAP resulted because of access problems, location of utilities, and new information.

The samples collected also included: three background soil borings analyzed for CWP Table 1 constituents (Table 3-2); from non-operational CS areas; and three random PCB surface (0 to 6 inches bgs) soil samples. The background soil borings included the collection of soil samples from 1 to 3 feet

TABLE 3-1
SAMPLING PROGRAM SUMMARY
FORMER HAGAN COMPRESSOR STATION

Potential Release Area	PRA Description	# Borings	# Samples	Sample Depth (ft)	Matrix	Type	Analytes	Rationale/Remarks	Comments/Modifications
PRA #1	1,000 gal. UT (pipeline liquids)	2	2	4.6' and 6.6'	Soil	Grab	Table 1 (CWP)	To determine the presence of Table 1 (CWP) constituents in soils adjacent to the UT	Two borings at each end of the UT
PRA #2	One AT (Fuel Gas - 30 gallon) and LRP on Fuel Gas Line (Non-Sampled PRA)	N/A	N/A	N/A	Soil	Grab	TPH/BTEX/PCBs	To determine the presence of BTEX, TPH, and PCBs constituents in soils adjacent to the AT and LRPs	Two borings adjacent to unit/ eliminated in field due to proximity of CS equipment and structures, closest sample from PRA #3 to be used to address PRA #2
PRA #3	Blowdowns/Vents	5	10	0-1'/2.5'	Soil	Grab	TPH/BTEX	To determine the presence of BTEX and TPH constituents in soils adjacent to the blowdowns and vents	One boring adjacent to each blowdown/vent/two borings added to address two additional blowdowns/ vents
PRA #4	Oil Pump Area	1	3	0-1'/2.5'/5'	Soil	Grab	TPH/BTEX	To determine the presence of BTEX and TPH constituents in soils adjacent to the oil pump area	One boring adjacent to the unit
PRA #5	Air Tank/Old Pad Area	3	8	0-1'/2.5'/5'	Soil	Grab	TPH/BTEX	To determine the presence of BTEX and TPH constituents in soils adjacent to the air tank and old pad areas	Three borings, one on each side of structure
PRA #6	Makeup Oil AT (55-gal. Drum)	1	2	0-1'/1.5'-2.5'	Soil	Grab	TPH/BTEX	To determine the presence of BTEX and TPH constituents in soils adjacent to the makeup oil AT	One boring adjacent to the AT/ added during characterization activities
	Background Samples	3	3	1-3'	Soil	Grab	Table 1 (CWP)		Obtain samples from non-operational areas
	Random PCBs Samples	N/A	3	0-6"	Soil	Grab	PCBs		Obtain samples from compressor station area
Total Investigative Samples			31						
Total QA/QC Samples			12					A description of QA/QC samples is provided in Table 3-4.	
Total Samples			43						

Note:
N/A=Not Applicable

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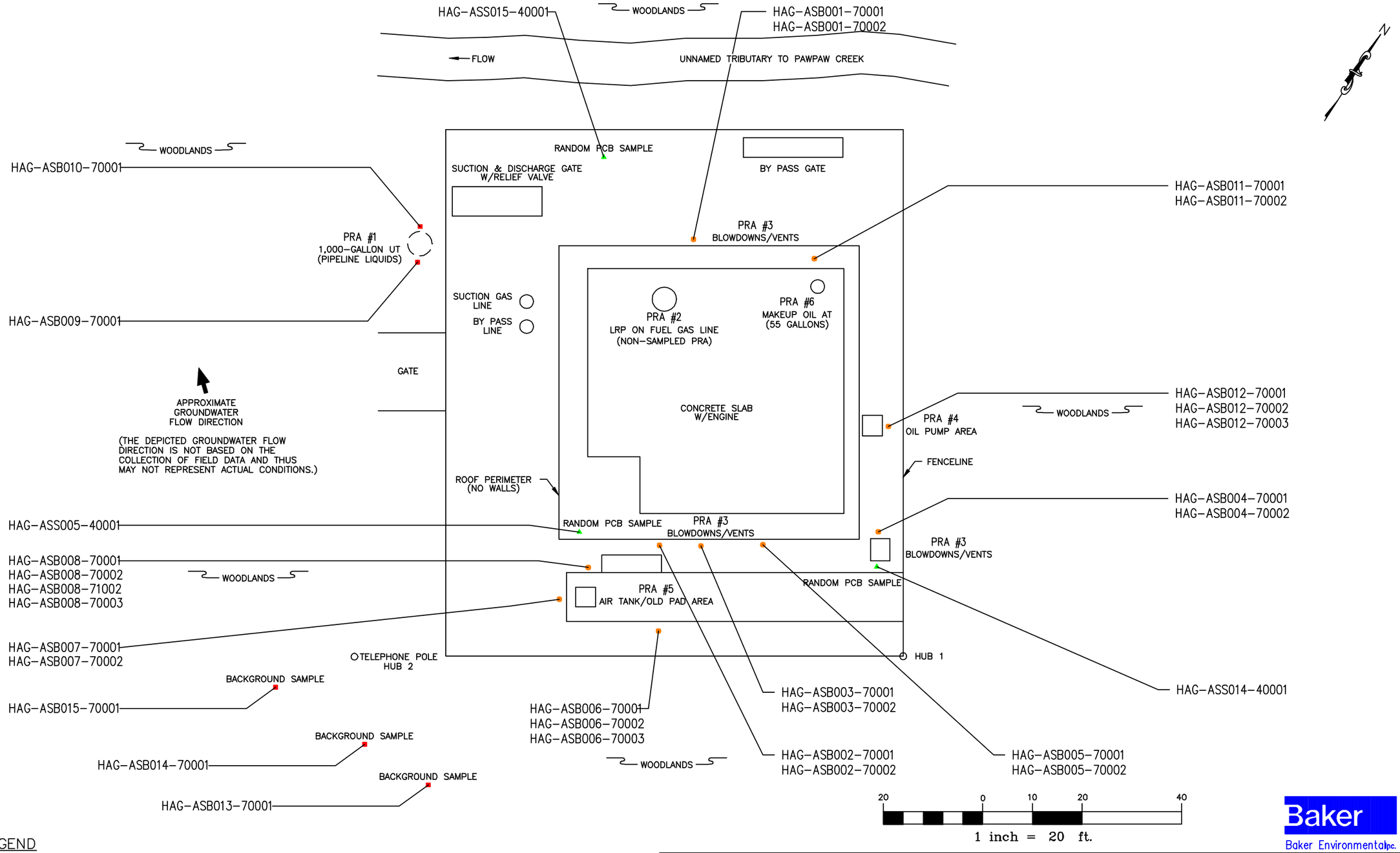

LEGEND

- ● – SURFACE AND AT DEPTH SOIL SAMPLE LOCATION
- ▲ – SURFACE SOIL/SEDIMENT SAMPLE LOCATION
- ■ – AT DEPTH SOIL SAMPLE LOCATION

Baker Environmental Inc.

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FIGURE 3-1
SAMPLE LOCATION MAP
FORMER HAGAN COMPRESSOR STATION

TABLE 3-2
CONSTITUENTS OF CONCERN[1]
(CWP TABLE 1)

Analyte			
Volatile Organics 2-butanone 4-Methyl-2-Pentanone 1,1-Dichloroethene 1,2-Dichloroethane 1,1,2-Trichloroethane 1,1,1,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane Acetone Benzene	**Volatile Organics** Carbon tetrachloride Chlorobenzene Ethylbenzene Methylene chloride Tetrachloroethene Toluene Trichloroethene Xylenes	**Semivolatile Organics** 2-Methylphenol (o-cresol) 3-Methylphenol (m-cresol) 4-Methylphenol (p-cresol) 2,4-Dichlorophenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol Phenol **PAHs** Acenaphthene Acenaphthylene anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(ghi)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Phenanthrene Pyrene **PCBs** PCBs (total)	**Inorganic Substances** Antimony Arsenic Barium (ionic) Beryllium Cadmium Chromium (total)[2] Cyanide Lead Mercury (total) Nickel Silver

NOTES:

1 Hazardous substances, pollutants, and contaminants identified to be of concern at WSL locations based on numerous pervious investigations by Columbia.
2 Areas where the total chromium concentration is above CALs and/or background will be resampled and analyzed for haxavalent chromium.

bgs. In addition 31 soil samples and 12 quality control (QC) samples were collected as part of this effort.

3.3 Analytical Parameters for Sample Analysis

Ecology and Environment Laboratories, Inc. of Lancaster, New York, performed all of the analytical work for this characterization. USEPA protocols for the laboratory analyses were followed and supported by Quality Assurance/Quality Control (QA/QC) documentation. The analytical methods used are listed in Table 3-3, as presented in Appendix B of the CWP Quality Assurance Project Plan (QAPP). The comprehensive analytical reports and chain of custody records are presented in Appendix B of this report.

3.4 Quality Assurance/Quality Control Procedures

As outlined in the CWP dated June 1996, the objectives of the QA/QC Program were to ensure that all of the data produced is scientifically valid, defensible, and of adequate precision and accuracy. Three levels of QA/QC procedures were utilized for this project:

- Field sampling activities and QA/QC procedures were conducted as specified in Volume I, Sections 4, 5 and 6, and Appendix A and B of the CWP dated June 1996.

- Laboratory QA/QC procedures were exercised as specified in Appendix B of the CWP dated June 1996.

- Data verification was performed by Environmental Standards, Inc. (ESi) using proprietary software on all of the analytical data. ESi also performs a traditional data validation effort on 10 percent of CWP program's data.

The following describes in detail the field sampling QA/QC procedures undertaken.

During the completion of field work, care was taken to limit the potential for cross contamination between sampling locations. This was accomplished by generally sampling from areas suspected to

TABLE 3-3
SUMMARY OF ANALYTICAL PROCEDURES

TCL/TAL ANALYTE	PREP METHOD	ANALYSIS METHOD
WATER/GROUND WATER		
Semivolatiles	3510B/3520B	8270B
Volatiles/BTEX	5030A	8260A/8021A (BTEX)
PCBs	3510B/3520B	8081
Cyanide	9010A, 9012	9010A, 9012
Metals	3005	6010, 7470A (Hg)
Chromium	7196A, 7199	7196A, 7199
TPH-diesel	3510B/3520B	8015 Modified
TPH-gasoline	5030A	8015 Modified
Glycol Compounds	8015 Modified [a]	8015 Modified [a]
PAHs	3510B/3520B	8310/8270B
SOIL/SEDIMENT		
Semivolatiles	3550A/3540B/3541	8270B
Volatiles/BTEX	5030A	8260A/8021A (BTEX)
Cyanide	9010A, 9012	9010A, 9012
Metals	3050	6010A, 7471A (Hg)
Chromium, +6	7196A, 7199	7196A, 7199
PCBs	3550A/3540B/3541	8081
TPH-Diesel	3550A/3540B/3541	8015 Modified
TPH-Gasoline	5030A	8015 Modified
Glycol Compounds	8015 Modified [a]	8015 Modified [a]
Asbestos-Containing Materials (ACM)	N/A	EPA 600-N4-82-020
PAHs	355A/3540B/3541	8310/8270B

NOTES:

[a] Procedure for analysis of glycol compounds is based on a modified 8015 analysis developed by Quanterra, Inc. (See Attachment B-1 of the CWP QAPP).
[b] All analyses may not have been performed during this investigation.
N/A - Not applicable.

contain low concentrations of site-related constituents to areas suspected to contain high concentrations of site-related constituents, using disposable sampling equipment whenever practical and carefully using decontamination procedures outlined in the CWP if disposable equipment was not available. All field work was documented in bound field notebooks and all sample documentation was accomplished using the FRANKLIN Field Data Management Computer Program©. This data management program produces both hard copy chain of custody records (accompanies samples) as well as an electronic record for each sample that is uploaded into the database maintained by ESI for this program. The use of FRANKLIN also ensures that samples are identified, tracked, and analyzed for the appropriate parameters.

A number of QA/QC samples were collected as required, and the following briefly describes these samples collected. Individual QA/QC samples collected are presented in Table 3-4.

- Field duplicates are collected as a check on laboratory accuracy and precision. Care was taken in splitting the original sample to keep the composition of the duplicate sample identical to the original sample. The duplicate samples are submitted for analysis of the same constituents as the corresponding investigative sample. One field duplicate soil sample was collected as part of this characterization effort.

- Equipment blanks (rinsate) are collected to address cross-contamination in the field between sampling locations due to deficient field decontamination procedures. In addition, equipment blanks also allow field preservation procedures, environmental interferences, and blank water quality to be addressed. During characterization activities, two equipment blanks were collected (sample trowel and geoprobe), and the samples were submitted for analysis of the same constituents as the corresponding investigative sample. Note that the water rinse used in preparation of the equipment blanks was supplied by the laboratory.

Table 3-4
QA/QC Samples
HAGAN CS

EQUIPMENT BLANK

Sample ID	Analytes	Duplicate of Sample Num	Comments
HAG-ASB004-72001	BTEX, CYANIDE, GW KY PCB, HG, TABLE 1 METALS, TABLE 1 SVOC, TABLE 1 VOA, TPH	HAG-ASB004	
HAG-ASS015-42001	BTEX, CYANIDE, GW KY PCB, HG, TABLE 1 METALS, TABLE 1 SVOC, TABLE 1 VOA, TPH	HAG-ASS015	

FIELD DUP

Sample ID	Analytes	Duplicate of Sample Num	Comments
HAG-ASB008-71002	BTEX, TPH	HAG-ASB008	

MATRIX SPIKE

Sample ID	Analytes	Duplicate of Sample Num	Comments
HAG-ASB004-70002	BTEX	HAG-ASB004	
HAG-ASB004-72001	BTEX	HAG-ASB004	
HAG-ASB006-70001	TPH	HAG-ASB006	
HAG-ASB008-70003	BTEX, TPH	HAG-ASB008	
HAG-ASB014-70001	CYANIDE, TABLE 1 SVOC	HAG-ASB014	
HAG-ASB015-70001	TABLE 1 SVOC, TABLE 1 VOA	HAG-ASB015	
HAG-ASS015-40001	PCB	HAG-ASS015	
HAG-ASS015-42001	CYANIDE, TABLE 1 VOA	HAG-ASS015	

MATRIX SPIKE DUPLICATE

Sample ID	Analytes	Duplicate of Sample Num	Comments
HAG-ASB004-70002	BTEX	HAG-ASB004	
HAG-ASB004-72001	BTEX	HAG-ASB004	
HAG-ASB006-70001	TPH	HAG-ASB006	
HAG-ASB008-70003	BTEX, TPH	HAG-ASB008	
HAG-ASB014-70001	TABLE 1 SVOC	HAG-ASB014	
HAG-ASB015-70001	TABLE 1 SVOC, TABLE 1 VOA	HAG-ASB015	
HAG-ASS015-40001	PCB	HAG-ASS015	

Table 3-4
QA/QC Samples
HAGAN CS

HAG-ASS015-42001	TABLE 1 VOA	HAG-ASS015

TRIP BLANK

Sample ID	Analytes	Duplicate of Sample Num	Comments
HAG-ASB015-73001	BTEX, TABLE 1 VOA	HAG-ASB015	

- Trip blanks are submitted for analysis to address interferences derived from improper sample container preservation, contaminated blank source water, and cross-contaminated during bottle storage/handling/shipping. The trip blank was prepared by the laboratory in the appropriate sample container using blank source water. The trip blank was sealed and stored in the ice chest in which samples were staged and transported. One trip blank accompanied the cooler that contained samples for VOC analyses. The trip blank was analyzed for all VOCs of concern listed in Table 1 of the CWP dated June 1996. One trip blank was submitted as part of this characterization effort.

- Matrix Spike (MS) and Matrix Spike Duplicate (MSD) samples are collected to allow the laboratory to determine if matrix interferences may affect the quality of the results. Care was taken in splitting the original sample to keep the composition of the duplicate sample identical to the original sample. The samples are submitted for analysis of the same constituents as the corresponding investigative sample. Eight MS and eight MSD samples were collected for soils as a part of this characterization effort.

- A temperature blank is maintained and submitted with each cooler which contains samples for analysis. Upon receipt by the laboratory, the temperature of the temperature blank is recorded to document that the samples were maintained at an appropriate temperature. The temperature blanks are not formally submitted for analysis.

The laboratory QA/QC procedures are extensive and are not discussed in this report other than how they may have affected the usability of the final data as determined by the data verification and validation efforts. The results of the data verification and data validation are presented in Section 4.4.

3.5 Other Field Activities

3.5.1 Site Surveys

In order to ensure that sample locations could be relocated in the future, the location of each sample was referenced to two survey hubs. The location of survey hubs, the telephone pole and the southeast corner of concrete slab of PRA #5, are presented on Figure 1-2. The bearing and distance were

measured from each sample location to these survey hubs using triangulation between hubs. To allow the site's location to be presented in Columbia's Geographic Information System (GIS), the location of each survey hub was measured using Global Positioning System (GPS) equipment (Trimble).

In addition, during field characterization activities, digital photographs were taken of the overall CS and sampled areas. Digital photographs have been incorporated into the Columbia data management system. Digital photographs of all the PRAs and overall CS photographs are presented in Appendix C of this report.

4.0 CHARACTERIZATION RESULTS

4.1 Characterization Action Levels

Characterization Action Levels (CALs) for soil and drinking water were compiled from numerous sources for constituents of concern at Columbia facilities. The CALs in Table 4-1 are generally conservative standards and include risk-based concentrations which were derived from residential exposure scenarios. The action levels specified in Table 4-1 were primarily derived from the following sources:

- USEPA Region III "Risk Based Concentration Tables," October 1, 1998
- USEPA "Drinking Water Regulations and Health Advisories," Office of Water, EPA 822-B-96-002, October 1996
- Federal register 63 (124): 35384-35474 (June 29, 1998) "Disposal of Polychlorinated Biphenyls (PCBs)," Final Rule; value for residential soils.
- EPA OSWER Directive #9355.4-12, PB94-963282.

More specific references and rationale for selection of the CALs are provided on Table 4-1. Appendices D and E provide a complete listing of all applicable standards, including residential and industrial scenarios, for soil and drinking water, respectively.

The CALs are used as a conservative guide in the identification of soils, water, and other media addressed as part of the characterization and response action. Simply stated, samples collected from a PRA that exhibit constituents of concern at concentrations below those presented in Table 4-1 would require no further action. Results above the values in Table 4-1 do not necessarily indicate that the PRA constitutes a threat to human health and the environment. Exceedences only indicate that further consideration of the PRA is warranted.

TABLE 4-1 (PAGE 1 OF 3)
PROPOSED CHARACTERIZATION ACTION LEVELS FOR SOIL AND DRINKING WATER
STATE OF OHIO
COLUMBIA GAS TRANSMISSION

CONSTITUENT	CAS	SOILS		DRINKING WATER	
		SELECTED LEVEL (mg/kg)	REASON	SELECTED LEVEL (ug/L)	REASON
VOLATILE ORGANICS					
2-BUTANONE (METHYL ETHYL KETONE)	78933	47000	A	1900	A
4-METHYL-2-PENTANONE (METHYL ISOBUTYL KETONE)	108101	6300	A	2900	A
1,1-DICHLOROETHENE	75354	1.1	A	7	J
1,2-DICHLOROETHANE	107062	7	A	5	J
1,1,1-TRICHLOROETHANE	71556	1600	A	200	J
1,1,2-TRICHLOROETHANE	79005	11	A	5	J
1,1,1,2-TETRACHLOROETHANE	630206	25	A	0.41	A
1,1,2,2-TETRACHLOROETHANE	79345	3.2	A	0.052	A
ACETONE	67641	7800	A	3700	A
BENZENE	71432	22	A	5	J
CARBON TETRACHLORIDE	56235	4.9	A	5	J
CHLOROBENZENE	108907	1600	A	35	A
ETHYLBENZENE	100414	7800	A	700	J
METHYLENE CHLORIDE	75092	85	A	5	J
TETRACHLOROETHENE	127184	12	A	5	J
TOLUENE	108883	16000	A	1000	J
TRICHLOROETHENE	79016	58	A	5	J
XYLENES	1330207	160000	A	10000	J
SEMIVOLATILE ORGANICS					
2-METHYLPHENOL (O-CRESOL)	95487	3900	A	1800	A
3-METHYLPHENOL (M-CRESOL)	103394	3900	A	1800	A
4-METHYLPHENOL (P-CRESOL)	106445	390	A	180	A
2,4-DICHLOROPHENOL	120832	230	A	20	K
2,4,5-TRICHLOROPHENOL	95954	7800	A	3700	A
2,4,6-TRICHLOROPHENOL	88062	58	A	6.1	A
PHENOL	108952	47000	A	4000	K
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)					
ACENAPHTHENE	83329	4700	A	2200	A
ACENAPHTHYLENE	208968	4700	B	2200	B
ANTHRACENE	120127	23000	A	11000	A
BENZO(A)ANTHRACENE	56553	0.87	A	0.092	A
BENZO(A)PYRENE	50328	0.087	A	0.2	J

TABLE 4-1 (PAGE 2 OF 3)
PROPOSED CHARACTERIZATION ACTION LEVELS FOR SOIL AND DRINKING WATER
STATE OF OHIO
COLUMBIA GAS TRANSMISSION

CONSTITUENT	CAS	SOILS		DRINKING WATER	
		SELECTED LEVEL (mg/kg)	REASON	SELECTED LEVEL (ug/L)	REASON
BENZO(B)FLUORANTHENE	205992	0.87	A	0.092	A
BENZO(GHI)PERYLENE	191242	2300	C	1100	C
BENZO(K)FLUORANTHENE	207089	8.7	A	0.92	A
CHRYSENE	218019	87	A	9.2	A
DIBENZO(A,H)ANTHRACENE	53703	0.087	A	0.0092	A
FLUORANTHENE	206440	3100	A	1500	A
FLUORENE	86737	3100	A	1500	A
INDENO(1,2,3-CD)PYRENE	193395	0.87	A	0.092	A
NAPHTHALENE	91203	1600	A	730	L
PHENANTHRENE	85018	23000	D	11000	D
PYRENE	129000	2300	A	1100	A
POLYCHLORINATED BIPHENYLS (PCB)					
TOTAL PCBs	NA	1	E	0.5	J
GLYCOLS					
ETHYLENE GLYCOL	107211	160000	A,F	7000	F,K
INORGANICS					
ANTIMONY	7440360	31	A	6	J
ARSENIC	7440382	0.43	A	50	J
BARIUM	7440393	5500	A	2000	J
BERYLLIUM	7440417	160	A	4	J
CADMIUM	7440439	39	A	5	J
CHROMIUM III	16065831	120000	A	100	N
CHROMIUM VI	18540299	230	A	100	N
CHROMIUM (TOTAL)	7440473	230	A,G	100	J
CYANIDE	57125	1600	A	200	J
LEAD	7439921	400	H	15	M
MERCURY	7439976	20	O	2	J
NICKEL	7440020	1600	A	100	J
SILVER	7440224	390	A	100	K

TABLE 4-1 (PAGE 3 OF 3)
PROPOSED CHARACTERIZATION ACTION LEVELS FOR SOIL AND DRINKING WATER
STATE OF OHIO
COLUMBIA GAS TRANSMISSION

CONSTITUENT	CAS	SOILS		DRINKING WATER	
		SELECTED LEVEL (mg/kg)	REASON	SELECTED LEVEL (ug/L)	REASON
TOTAL PETROLEUM HYDROCARBONS (TPH)					
DIESEL RANGE ORGANICS (DRO)	NA	NA	I	NA	I
GASOLINE RANGE ORGANICS (GRO)	NA	NA	I	NA	I
TPH	NA	NA	I	NA	I

Notes:
MCL - Maximum Contaminant Level.
HAL - Health Advisory Level, Lifetime, Adult.
RBC - Risk-Based Concentration
NA -Not Available
CAS - Chemical Abstract Service Identification Number

Reasons for Selection:

A - U.S. EPA Region III RBC value for residential soil or tap water. (a)
B - Due to structural similarities, Region III RBC value for acenaphthene used for this constituent. (a)
C - Due to structural similarities, Region III RBC value for pyrene used for this constituent. (a)
D - Due to structural similarities, Region III RBC value for anthracene used for this constituent. (a)
E - Federal Register 63(124):35384-35474 (June 29, 1998), Disposal of Polychlorinated Biphenyls (PCBs); Final Rule; value for unrestricted access, high occupancy level (>6.7 hours per week) soil. (c)
F - Value used for all glycols.
G - Numerical value for hexavalent chromium used for total chromium for screening purposes.(a)
H - IEUBK model results using EPA defaults for residential child (EPA OSWER Directive #9355.4-12, PB94-963282). (d)
I - TPH standards are not appropriate for Columbia petroleum hydrocarbon releases. Columbia will characterize petroleum hydrocarbon releases through analysis of its components (BTEX, PAHs, and lead (waste oil releases only)).
J - MCL value.(b)
K- HAL value. (b)
L - Region III RBC value; HAL value based on out-dated toxicity value for naphthalene.(a)(b)
M - Treatment Technology Action Level for lead. (b)
N - MCL value for total chromium used this constituent for screening purposes. (b)
O - Value derived in Cleanup Action Levels for Mercury in Soils at Mercury Measuring Stations at Natural Gas Sites, ENSR, March, 1998; Active Screening Assessment Work Plan. Columbia Gas Transmission Corp. January 1996. (e,f)

References:

(a) - U.S. EPA Region III RBC, October 1, 1998.
(b) - Drinking Water Regulations and Health Advisories, Office of Water, EPA 822-B-96-002, October, 1996.
(c) - Federal Register 63(124):35384-35474 (June 29, 1998), Disposal of Polychlorinated Biphenyls (PCBs); Final Rule.
(d) - EPA OSWER Directive #9355.4-12, PB94-963282.
(e) - Cleanup Action Levels for Mercury in Soils at Mercury Measuring Stations at Natural Gas Sites, ENSR, March, 1998.
(f) - Active Screening Assessment Work Plan. Columbia Gas Transmission Corp. January 1996.

In addition, analytical results for metals may also be compared to concentrations observed in background samples. As presented in the CWP (June 1996), metal sample results can be compared to maximum detected background concentrations. Characterization result for metals that are below background concentrations are considered representative of background and would require no further action.

4.2 Site Physical Description

Based upon a review of soil descriptions from characterization activities, most of the site is covered with less than 0.5 feet of gravel and the remainder is covered by grasses. Below this depth, light to dark brown silty clays with trace gravel, which appear to become less permeable with depth (more clay) are predominant to encountered bedrock. A small lense of perched groundwater was encountered approximately 3.5 to 4.5 feet bgs at various locations at the CS. The depth to weathered sandstone bedrock varied between 4.6 feet and 6.6 feet bgs. During characterization activities, geoprobe borings were logged in the field logbook. Boring logs were then generated from field notes and are provided in Appendix F of this report.

Shallow perched groundwater was encountered approximately 3.5 feet bgs over much of the CS within the clayey silt horizon. A relatively permeable clayey silt zone appeared to be present in some borings through the vertical limit of the overburden (varying CS wide between 3.6 and 6.6 feet bgs). Detailed information on the site specific hydrogeology and groundwater quality of the subject property is not readily available. However, based upon the topographic position of the CS, it can be reasonably assumed that the groundwater flow direction is to the west, toward the unnamed tributary.

4.3 Analytical Results for Investigative Samples

A summary of methods analyzed for individual PRAs is provided in Table 4-2 for each medium (soil, groundwater, etc.), Table 4-3 (Summary of Analytical Results) lists only those constituents for which a valid positive detection was reported by the laboratory for at least one sample at the CS.

Table 4-2
Summary of Analytical Results

Summary of Methods Analyzed for Individual PRAs.

	PRA	1	3	4	5	6	7	8
Category	Analyte							
BNA	**2,4,5-TRICHLOROPHENOL**	X				X		
	2,4,6-TRICHLOROPHENOL	X				X		
	2,4-DICHLOROPHENOL	X				X		
	2-METHYLPHENOL (O-CRESOL)	X				X		
	3- AND/OR 4-METHYLPHENOL	X				X		
	ACENAPHTHENE	X				X		
	ACENAPTHYLENE	X				X		
	ANTHRACENE	X				X		
	BENZO(A)ANTHRACENE	X				X		
	BENZO(A)PYRENE	X				X		
	BENZO(B)FLUORANTHENE	X				X		
	BENZO(GHI)PERYLENE	X				X		
	BENZO(K)FLUORANTHENE	X				X		
	CHRYSENE	X				X		
	DIBENZO(A,H)ANTHRACENE	X				X		
	FLUORANTHENE	X				X		
	FLUORENE	X				X		
	INDENO(1,2,3-C,D)PYRENE	X				X		
	NAPHTHALENE	X				X		
	PHENANTHRENE	X				X		
	PHENOL	X				X		
	PYRENE	X				X		
INORGANIC	**CYANIDE, TOTAL**	X				X		
METAL	**ANTIMONY, TOTAL**	X				X		

Table 4-2
Summary of Analytical Results

Summary of Methods Analyzed for Individual PRAs.

	PRA	1	3	4	5	6	7	8
Category	Analyte							
	ARSENIC, TOTAL	X				X		
	BARIUM, TOTAL	X				X		
	BERYLLIUM, TOTAL	X				X		
	CADMIUM, TOTAL	X				X		
	CHROMIUM, TOTAL	X				X		
	LEAD, TOTAL	X				X		
	MERCURY, TOTAL	X				X		
	NICKEL, TOTAL	X				X		
	SILVER, TOTAL	X				X		
ORGANIC	**PETROLEUM HYDROCARBON**		X	X	X			X
P/PCB	**AROCLOR-1016**	X				X	X	
	AROCLOR-1221	X				X	X	
	AROCLOR-1232	X				X	X	
	AROCLOR-1242	X				X	X	
	AROCLOR-1248	X				X	X	
	AROCLOR-1254	X				X	X	
	AROCLOR-1260	X				X	X	
VOA	**1,1,1,2-TETRACHLOROETHANE**	X				X		
	1,1,1-TRICHLOROETHANE	X				X		
	1,1,2,2-TETRACHLOROETHANE	X				X		
	1,1,2-TRICHLOROETHANE	X				X		
	1,1-DICHLOROETHENE	X				X		
	1,2-DICHLOROETHANE	X				X		
	2-BUTANONE	X				X		

Table 4-2
Summary of Analytical Results

Summary of Methods Analyzed for Individual PRAs.

	PRA	1	3	4	5	6	7	8
Category	Analyte							
	4-METHYL-2-PENTANONE	X				X		
	ACETONE	X				X		
	BENZENE	X	X	X	X	X		X
	CARBON TETRACHLORIDE	X				X		
	CHLOROBENZENE	X				X		
	ETHYL BENZENE	X	X	X	X	X		X
	METHYLENE CHLORIDE	X				X		
	TETRACHLOROETHYLENE(PCE)	X				X		
	TOLUENE	X	X	X	X	X		X
	TRICHLOROETHYLENE (TCE)	X				X		
	XYLENES (TOTAL)	X	X	X	X	X		X

Table 4-3
Summary of Analytical Results

		PRA	1				3	
		PRA Description	PRA #1 1000 GALLON UT				PRA #3 BLOWDOWNS/VENTS	
		Sample Type	Normal Sample				Normal Sample	
		Sample Id	HAG-ASB009-70001		HAG-ASB010-70001		HAG-ASB001-70001	
		Depth - ft bgs	3.6 - 4.6		5.6 - 6.6		0 - 1	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*	Result Flag	> CAL*
METAL	BARIUM, TOTAL	5500	137		109			
	BERYLLIUM, TOTAL	160	ND		ND			
	CHROMIUM, TOTAL	230	17.5		22.8			
	NICKEL, TOTAL	1600	20.0		24.1			
	ARSENIC, TOTAL	.43	8.1	X	12.4	X		
INORGANIC	PETROLEUM HYDROCARBON						2300	

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.
J flag - Numerical value is an estimated quantity.
ND indicates Non-Detect
Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB001-70002**		**HAG-ASB002-70001**		**HAG-ASB002-70002**	
		Depth - ft bgs	**1.5 - 2.5**		**0 - 1**		**1.5 - 2.5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**> CAL***	**Result Flag**	**> CAL***	**Result Flag**	**> CAL***
METAL	**BARIUM, TOTAL**	5500						
	BERYLLIUM, TOTAL	160						
	CHROMIUM, TOTAL	230						
	NICKEL, TOTAL	1600						
	ARSENIC, TOTAL	.43						
INORGANIC	**PETROLEUM HYDROCARBON**		1600		ND		200	

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.
J flag - Numerical value is an estimated quantity.
ND indicates Non-Detect
Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB003-70001**		**HAG-ASB003-70002**		**HAG-ASB004-70001**	
		Depth - ft bgs	**0 - 1**		**1.5 - 2.5**		**0 - 1**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**> CAL***	**Result Flag**	**> CAL***	**Result Flag**	**> CAL***
METAL	**BARIUM, TOTAL**	5500						
	BERYLLIUM, TOTAL	160						
	CHROMIUM, TOTAL	230						
	NICKEL, TOTAL	1600						
	ARSENIC, TOTAL	.43						
INORGANIC	**PETROLEUM HYDROCARBON**		ND		ND		ND	

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.
J flag - Numerical value is an estimated quantity.
ND indicates Non-Detect
Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB004-70002**		**HAG-ASB005-70001**		**HAG-ASB005-70002**	
		Depth - ft bgs	**1.5 - 2.5**		**0 - 1**		**1.5 - 2.5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**> CAL***	**Result Flag**	**> CAL***	**Result Flag**	**> CAL***
METAL	**BARIUM, TOTAL**	5500						
	BERYLLIUM, TOTAL	160						
	CHROMIUM, TOTAL	230						
	NICKEL, TOTAL	1600						
	ARSENIC, TOTAL	.43						
INORGANIC	**PETROLEUM HYDROCARBON**		ND		ND		ND	

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.
J flag - Numerical value is an estimated quantity.
ND indicates Non-Detect
Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

		PRA	4					
		PRA Description	PRA #4 OIL PUMP AREA					
		Sample Type	Normal Sample					
		Sample Id	HAG-ASB012-70001		HAG-ASB012-70002		HAG-ASB012-70003	
		Depth - ft bgs	0 - 1		1.5 - 2.5		4 - 5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*	Result Flag	> CAL*
METAL	BARIUM, TOTAL	5500						
	BERYLLIUM, TOTAL	160						
	CHROMIUM, TOTAL	230						
	NICKEL, TOTAL	1600						
	ARSENIC, TOTAL	.43						
INORGANIC	PETROLEUM HYDROCARBON		ND		ND		29.0	

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.
J flag - Numerical value is an estimated quantity.
ND indicates Non-Detect
Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

		PRA	5					
		PRA Description	PRA #5 AIR TANK/OLD PAD AREA					
		Sample Type	Field Duplicate (Rep)		Normal Sample			
		Sample Id	HAG-ASB008-71002		HAG-ASB006-70001		HAG-ASB006-70002	
		Depth - ft bgs	1.5 - 2.5		0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*	Result Flag	> CAL*
METAL	BARIUM, TOTAL	5500						
	BERYLLIUM, TOTAL	160						
	CHROMIUM, TOTAL	230						
	NICKEL, TOTAL	1600						
	ARSENIC, TOTAL	.43						
INORGANIC	PETROLEUM HYDROCARBON		88.0		ND		ND	

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.
J flag - Numerical value is an estimated quantity.
ND indicates Non-Detect
Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB006-70003**		**HAG-ASB007-70001**		**HAG-ASB007-70002**	
		Depth - ft bgs	**4 - 5**		**0 - 1**		**1.5 - 2.5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**> CAL***	**Result Flag**	**> CAL***	**Result Flag**	**> CAL***
METAL	**BARIUM, TOTAL**	5500						
	BERYLLIUM, TOTAL	160						
	CHROMIUM, TOTAL	230						
	NICKEL, TOTAL	1600						
	ARSENIC, TOTAL	.43						
INORGANIC	**PETROLEUM HYDROCARBON**		ND		ND		ND	

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.
J flag - Numerical value is an estimated quantity.
ND indicates Non-Detect
Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB008-70001**		**HAG-ASB008-70002**		**HAG-ASB008-70003**	
		Depth - ft bgs	**0 - 1**		**1.5 - 2.5**		**4 - 5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**> CAL***	**Result Flag**	**> CAL***	**Result Flag**	**> CAL***
METAL	**BARIUM, TOTAL**	5500						
	BERYLLIUM, TOTAL	160						
	CHROMIUM, TOTAL	230						
	NICKEL, TOTAL	1600						
	ARSENIC, TOTAL	.43						
INORGANIC	**PETROLEUM HYDROCARBON**		930		ND		16.0	

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.
J flag - Numerical value is an estimated quantity.
ND indicates Non-Detect
Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

		PRA	6					
		PRA Description	BACKGROUND					
		Sample Type	Normal Sample					
		Sample Id	HAG-ASB013-70001		HAG-ASB014-70001		HAG-ASB015-70001	
		Depth - ft bgs	1 - 3		1 - 3		1 - 3	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*	Result Flag	> CAL*
METAL	BARIUM, TOTAL	5500	140		151		81.8	
	BERYLLIUM, TOTAL	160	1.2		1.2		ND	
	CHROMIUM, TOTAL	230	22.8		23.0		22.1	
	NICKEL, TOTAL	1600	25.0		27.3		26.0	
	ARSENIC, TOTAL	.43	25.2	X	9.5	X	11.9	X
INORGANIC	PETROLEUM HYDROCARBON							

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.
J flag - Numerical value is an estimated quantity.
ND indicates Non-Detect
Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

		PRA	7					
		PRA Description	PRA #7 RANDOM PCB SAMPLES					
		Sample Type	Normal Sample					
		Sample Id	HAG-ASS005-40001		HAG-ASS014-40001		HAG-ASS015-40001	
		Depth - ft bgs	0 - .5		0 - .5		0 - .5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*	Result Flag	> CAL*
METAL	BARIUM, TOTAL	5500						
	BERYLLIUM, TOTAL	160						
	CHROMIUM, TOTAL	230						
	NICKEL, TOTAL	1600						
	ARSENIC, TOTAL	.43						
INORGANIC	PETROLEUM HYDROCARBON							

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.
J flag - Numerical value is an estimated quantity.
ND indicates Non-Detect
Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

		PRA	8			
		PRA Description	PRA #8 MAKE UP OIL AT (55 GALLON)			
		Sample Type	Normal Sample			
		Sample Id	HAG-ASB011-70001		HAG-ASB011-70002	
		Depth - ft bgs	0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*
METAL	BARIUM, TOTAL	5500				
	BERYLLIUM, TOTAL	160				
	CHROMIUM, TOTAL	230				
	NICKEL, TOTAL	1600				
	ARSENIC, TOTAL	.43				
INORGANIC	PETROLEUM HYDROCARBON		540		ND	

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.
J flag - Numerical value is an estimated quantity.
ND indicates Non-Detect
Blank cells in result column indicate an analysis was not performed for that analyte.

ORGANIC DATA TABLE NOTES

CATEGORY:

BNA: Base/Neutral/Acid (BNA) extractable compounds are a sub-classification of Semi-Volatile Organic Compounds (SVOCs), and are referenced throughout the text as SVOCs.

P/PCB: Category refers to Pesticides/PCB analysis, however, no pesticides were analyzed for this site.

QUALIFIER FLAGS:

U This compound was not detected at or above the associated reporting limit or this compound should be considered "not-detected" since it was detected in an associated blank at a similar level.

J Quantitation is approximate due to limitations identified during the quality assurance review (data validation) or data verification process.

J+ Quantitation is approximate and may be biased high, due to limitations identified during the quality assurance review (data validation) or data verification process.

J- Quantitation is approximate and may be biased low, due to limitations identified during the quality assurance review (data validation) or data verification process.

R Unusable result; compound may or may not be present in this sample.

UJ This compound was not detected, but the reporting limit is probably higher due to a low bias identified during the quality assurance review or data verification process.

N This result should be considered a tentative qualitative identification.

INORGANIC AND WET CHEMISTRY DATA TABLE NOTES

QUALIFIER FLAGS:

U This analyte was not detected at or above the associated reporting limit or this analyte should be considered "not-detected" since it was detected in an associated blank at a similar level.

J Quantitation is approximate due to limitations identified during the quality assurance review (data validation) or data verification process.

J+ Quantitation is approximate and may be biased high, due to limitations identified during the quality assurance review (data validation) or data verification process.

J- Quantitation is approximate and may be biased low, due to limitations identified during the quality assurance review (data validation) or data verification process.

R Unusable result; analyte may or may not be present in this sample.

UJ This analyte was not detected, but the reporting limit is probably higher due to a low bias identified during the quality assurance review or data verification process.

Figure 4-1 presents analytical results which exceeded the CALs and/or background on the CS base map to facilitate review. The results are discussed by PRA to facilitate review in the following subsections.

Columbia maintains a hard copy of all analytical data should additional review be needed.

4.3.1 Background Sampling Results

One background soil sample was collected from 1 to 3 feet bgs at three locations believed to not be affected by operations of the compressor station (Figure 4-1). These three samples were located topographically upgradient (south) of the various compressor station equipment on the valley hillside. All three of these samples were analyzed for Table 1 (CWP) constituents.

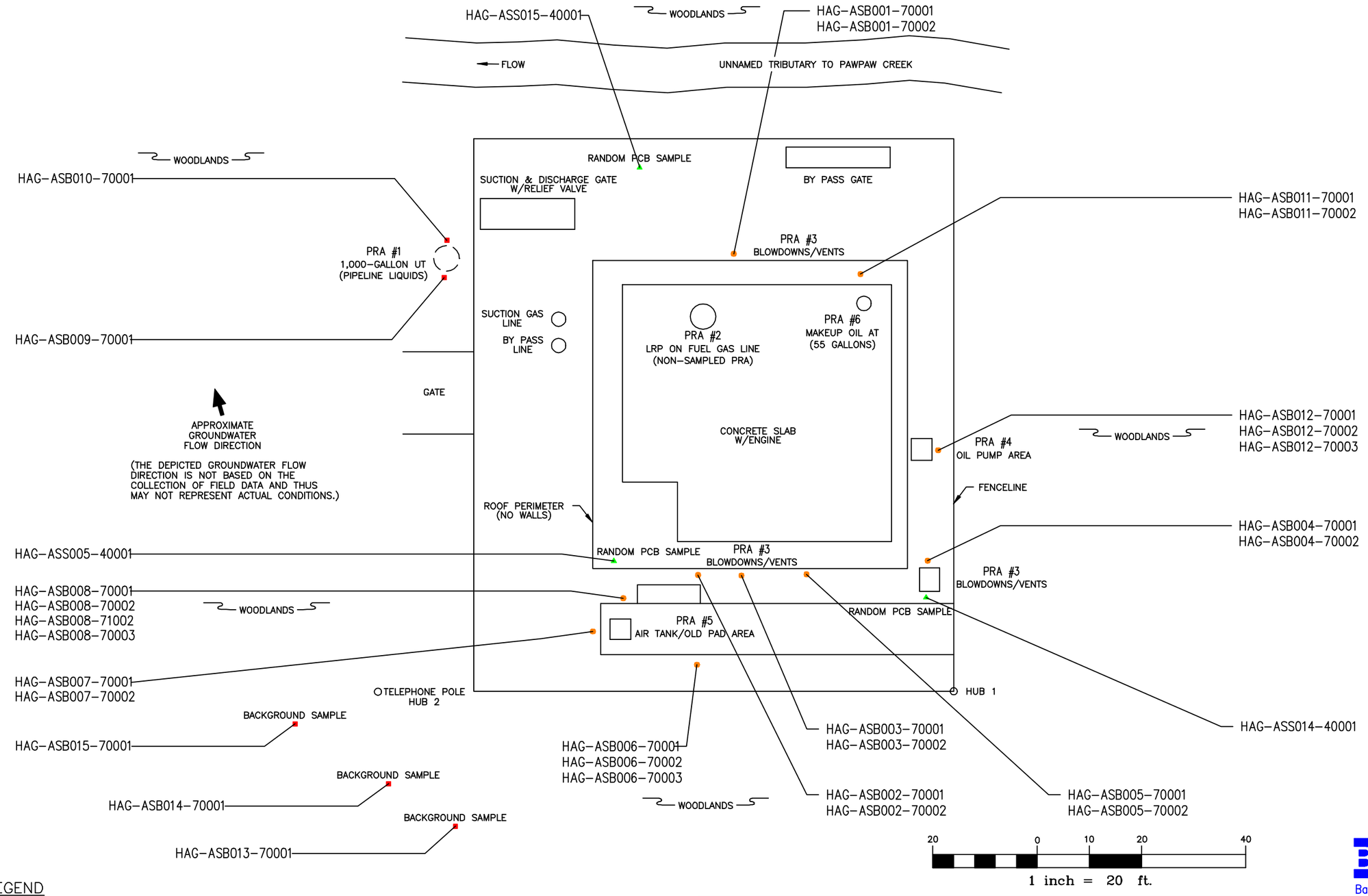
VOCs, SVOCs, PCBs, mercury, or cyanide were not detected in any of the three background samples (HAG-ASB013-70001, HAG-ASB014-70001, and HAG-ASB015-70001). However, laboratory analytical results indicated the presence of various metals at concentrations below the CALs with the exception of arsenic. Arsenic was detected above its corresponding CAL in all three background samples at concentrations of 25.2 mg/kg, 9.5 mg/kg, and 11.9 mg/kg respectively. These values are presented within Table 4-3. Because all three of the background borings are believed to be in locations not affected by compressor station operations, it is believed that the observed metal concentrations are indigenous to soil in the area.

As provided for in the CWP (June 1996) and in Section 4.1 of this report, the highest concentration of a constituent detected in the background samples is used to establish the background concentration for this constituent at the CS. Thus, the 25.2 mg/kg of arsenic in the background sample HAG-ASB013-70001 will be considered the background arsenic concentration.

4.3.2 Random PCB Sampling Results

Random PCB surface soil samples were collected from 0 to 6 inches bgs at three locations within the limits of CS operations. These three samples (HAG-ASS005-40001, HAG-ASS014-40001, and HAG-ASS015-40001), were collected to act as a check for PCB containing soils throughout the CS. PCB constituents were not detected in any of these soil samples.

22603F26



LEGEND

- ● – SURFACE AND AT DEPTH SOIL SAMPLE LOCATION
- ▲ – SURFACE SOIL/SEDIMENT SAMPLE LOCATION
- ■ – AT DEPTH SOIL SAMPLE LOCATION

NOTE: NO SAMPLES EXCEEDED A CAL AND/OR BACKGROUND.

SCALE:	1" = 20'	DATE:	02/18/98
S.O. NO.:	22603–HAG–0000–06000	FILE:	22603F26
REV:	0, 10/28/97	CHK:	

FIGURE 4–1
SAMPLE RESULTS WHICH EXCEED CALs AND/OR BACKGROUND
FORMER HAGAN COMPRESSOR STATION

Baker Environmental Inc.

4.3.3 Soil Potential Release Areas

PRA #1 - 1,000-Gallon Pipeline Liquids UT

Geoprobe® borings were advanced at each end of the UT (2 borings total) to depths different from those proposed in the original SAP because of bedrock (sandstone) refusal. The southeastern, upgradient boring had one subsurface soil sample (HAG-ASB009-70001) collected from 3.6 to 4.6 feet bgs. The northwestern, down gradient boring had one subsurface soil sample (HAG-ASB010-70001) collected from 5.6 to 6.6 feet bgs.

Laboratory analytical results of both soil samples indicated no detectable concentrations of Table 1 (CWP) VOCs, SVOCs, PCBs, mercury, or cyanide. However, several metals were detected in both samples below CALs. Arsenic was detected above its corresponding CAL (0.43 mg/kg) in both samples at concentrations of 8.1 mg/kg and 12.4 mg/kg, respectively. However, both of these arsenic concentrations are below maximum detected background arsenic concentration of 25.2 mg/kg.

PRA #2 - Fuel Gas 30-gallon AT and LRP on Fuel Gas Line (Non-sampled PRA)

Two Geoprobe® borings were proposed on each side of the LRP on the fuel gas tank to a depth of 5 feet bgs. Because this PRA was found to be inaccessible due to its proximity to other compressor equipment under the sheltered compressor engine concrete slab, and sampling of a nearby blowdown associated with PRA #3 would suffice for characterization of this PRA, it was agreed between Columbia, COE, and Baker that this PRA would be eliminated from the characterization process.

PRA #3 - Blowdowns/Vents

One Geoprobe® boring was advanced to 2.5 feet bgs at five blowdown/vent locations observed at the compressor station. Soil samples were collected at depths of 0 to 1 foot (HAG-ASB001-70001, HAG-ASB002-70001, HAG-ASB003-70001, HAG-ASB004-70001, and HAG-ASB005-70001), and 1.5 to 2.5 feet (HAG-ASB001-70002, HAG-ASB002-70002, HAG-ASB003-70002, HAG-ASB004-70002, and HAG-ASB005-70002) bgs.

Laboratory analytical results of the ten soil samples associated with this PRA had no detectable concentrations of BTEX constituents. However, TPH was detected in samples HAG-ASB001-70001, HAG-ASB001-70002, and HAG-ASB002-70002 at concentrations of 2,300 mg/kg, 1,600 mg/kg, and 200 mg/kg respectively. Despite the detection of TPH, evidence of staining and the presence of free product was not observed during sampling activities.

PRA #4 - Oil Heater Pump Area

One Geoprobe® boring was advanced to a depth of 5 feet bgs. Soil samples were collected at depths of 0 to 1 foot bgs (HAG-ASB012-70001), 1.5 to 2.5 feet bgs (HAG-ASB012-70002), and 4 to 5 feet bgs (HAG-ASB012-70003).

Laboratory analytical results for the three soil samples collected at this PRA exhibited no detection of BTEX constituents. The deepest sample (HAG-ASB012-70003) did however have a minor detection of TPH at a concentration of 29.0 mg/kg. Soil staining or the presence of free product was not observed at this PRA during sampling activities.

PRA #5 - Air Tank/Old Pad Area

Three Geoprobe® borings were advanced around the CAS concrete pad to a proposed depth of 5 feet bgs. Soil sampling was proposed for 3-intervals in each boring (0 to 1 foot, 1.5 to 2.5 feet, and 4 to 5 feet bgs). The boring on the southeast side of the slab encountered groundwater approximately 3.5 feet bgs, thus, the 4 to 5 feet bgs sample from this boring was eliminated from the characterization process.

The boring on the southeastern side (refer to Figure 4-1) of the CAS pad had soil samples collected at 0 to 1 foot bgs (HAG-ASB006-70001), 1.5 to 2.5 feet bgs (HAG-ASB006-70002), and 4 to 5 feet bgs (HAG-ASB006-70003). The boring on the southwestern side of the CAS pad had soil samples collected at 0 to 1 foot bgs (HAG-ASB007-70001), and 1.5 to 2.5 feet bgs (HAG-ASB007-70002). A third sample was not collected on this side of the CAS pad because perched groundwater was encountered at 3.5 feet, thus negating the last sample from 4 to 5 feet. The boring on the northwestern side of the CAS pad had soil samples collected at 0 to 1 foot bgs (HAG-ASB008-70001), 1.5 to 2.5

feet bgs (HAG-ASB008-70002), and 4 to 5 feet bgs (HAG-ASB008-70003). In addition, one duplicate soil sample (HAG-ASB008-71002) was collected.

BTEX constituents were not detected in any of the nine soil samples collected at this PRA (including the QA/QC duplicate sample). Three out of the nine soil samples did have positive detections for TPH. Samples HAG-ASB008-70001, HAG-ASB008-70003, and HAG-ASB008-71002 (the duplicate sample) had concentrations of TPH at 930 mg/kg, 16.0 mg/kg and 88.0 mg/kg respectively. Despite the detection TPH, stained soil or the presence of free product was not observed during sampling activities at this PRA.

PRA #6 - Makeup Oil AT (55 gallons)

One boring was advanced adjacent to the concrete pad beneath the AT to a depth of 2.5 feet bgs. Soil samples were collected at depths of 0 to 1 foot bgs (HAG-ASB011-70001) and 1.5 to 2.5 feet bgs (HAG-ASB011-70002).

Laboratory analytical results of both soil samples collected at this PRA exhibited no detectable quantities of BTEX constituents. TPH was detected in sample HAG-ASB011-70001) at a concentration of 540 mg/kg. Soil staining or free product was not observed during sampling activities at this PRA.

4.4 Quality Assurance/Quality Control Criteria Assessment

The following is a summary of the overall QA/QC criteria assessment for analytical data generated as a result of the Hagan site characterization. This summary reflects the general trends throughout the sampling event at the site contained within batch COC0105014. To facilitate review of the automated QA/QC assessments, the discussion has been separated into the following criteria.

- **Holding Time:** All holding time criteria were met. All analyses were considered acceptable, without qualification.

- **Surrogate Recoveries:** Surrogate recoveries were evaluated for BTEX, PCB, Volatile and Semivolatile analyses. All surrogate recoveries were within the established criteria for the

Volatile and Semivolatile fractions. Several recoveries were outside the QC limits in the BTEX and PCB analyses. These samples were not reanalyzed, and the possibility of matrix effects could not be confirmed. The non-compliant BTEX and PCB surrogate recoveries were greater than 10%, but fell below the lower QC limits. Since positive results were not observed in any of the effected samples, the associated non-detects were qualified estimated "UJ." Approximately 8% of the BTEX and 25% of the PCB analyses were qualified as estimated due to low surrogate recoveries.

- **MS/MSD Recoveries/RPD Results:** MS/MSD precision and accuracy were evaluated for Total Petroleum Hydrocarbon, BTEX and PCB analyses. Data qualification was not warranted due to any MS/MSD issues.

- **LCS/LCSD Recoveries/RPD Results:** LCS analyses were performed for all of the fractions. The precision and accuracy criteria were met in all analyses.

- **Field Duplicate:** One set of field duplicate samples was provided for this site. These samples were analyzed for Total Petroleum Hydrocarbon, and BTEX. All results were within the precision criteria.

- **Laboratory Duplicate:** Laboratory duplicate analyses were performed for Metals, Mercury and Cyanide. The analyses met the reproducibility requirements.

- **Field, Trip and Method Blanks:** All blank analyses were free of compound contamination. There was no evidence of contamination at either the field or laboratory locations.

In summation, the overall laboratory performance was considered satisfactory. All sample results were considered usable and representative. In addition, approximately 5% of the analyte results were qualified estimated. No data were rejected due to QA/QC issues. The overall completeness goal of 90% was satisfied.

5.0 CONCLUSIONS

Based on the results of this characterization effort, no further action is recommended for the following PRAs because CALs and/or background were not exceeded:

- PRA #1 1,000-gallon UT (Pipeline Liquid)
- PRA #2 LRP on Fuel Gas Line
- PRA #3 Blowdowns/Vents
- PRA #4 Oil Heater Pump Area
- PRA #5 Air Tank/Old Pad Area
- PRA #6 Makeup Oil AT (55 gallons)

Since there were no CAL and/or background exceedances, there is no need to discuss those PRAs in detail, as that was presented in Section 4.0.

Therefore, because sample analytical results obtained as part of this characterization effort did not exceed CALs or background results, PRAs at Former Hagan CS have not been designated for further characterization or response actions.

6.0 RECOMMENDED RESPONSE ACTIONS

Based on the conclusions presented in Section 5.0, Columbia proposes no further action for the Former Hagan CS as allowed by Section 8.2 (d) of the AOC.

7.0 REFERENCES

The following references have been used in the development of this Characterization Report:

DeLorme Mapping Company, 1995, Ohio Atlas & Gazetteer, Fourth Edition

Federal Register 63 (124): 35384-35474 (June 29, 1998), "Disposal of Polychlorinated Biphenyls (PCBs)"; Final Rule; Value for Residential Soil.

Ohio Department of Commerce, Division of State Fire Marshal, Bureau of Underground Storage Tank Regulations, January 1995.

United States Department of the Interior, Geological Survey, 7.5 Minute Series, Dazell, Ohio Quadrangle, 1961, Photorevised 1977, Photoinspected 1984.

United States Environmental Protection Agency OSWER Directive #9355.4-12, PB94-963282.

United States Department of Agriculture, Natural Resources Conservation Service, Soil Survey of Noble County, Ohio: 1990.

United States Environmental Protection Agency Region III "Risk Based Concentration Tables," October 1, 1998.

United States Environmental Protection Agency Region III "1996 Drinking Water Regulations and Health Advisories," Office of Water, EPA 822-B-96-002, October 1996.

Walker, Alfred C., Groundwater Resources of Noble County. Ohio Department of Natural Resources, Division of Water, Groundwater Resources Section, February 1991.

Weston, Roy F., Characterization Work Plan for Work Scope List Facilities, Volumes I and II, June 1995, Revised June 1996.

APPENDIX A

Facility Review Worksheet (FRW)

FACILITY REVIEW WORKSHEET

POTENTIAL RELEASE AREAS (PRAs)[a]	ITEMS PRESENT*	OBSERVATIONS			
		VISIBLE	OTHER EVIDENCE	OFF-SITE	GENERAL COMMENTS
ABOVEGROUND TANKS	2				55-Gallon Makeup Oil AT (PRA #6); 30-Gallon Fuel Gas (Non-Sampled PRA)(PRA #2)
a. PIPELINE LIQUID					
b. USED OIL FUEL TANK					
c. OTHER HAZARDOUS SUBSTANCE					
UNDERGROUND TANKS					
a. PIPELINE LIQUID	1				1,000-Gallon (PRA #1)
b. USED OIL					
c. OTHER					
BURN AREAS					
TRASH AREAS					
FLARE AREAS					
SEPTIC SYSTEM DRAIN FIELD					
DISPERSION AREAS					
ON-SITE PONDS					
ON-SITE STREAM					
DRAINAGE CHANNELS					
NATURAL GAS BLOWDOWNS AND VENTS	5				3 Blowdown & 2 Relief Valves (PRA #3)
COMPRESSED AIR SYSTEMS	1				No PCBs Used (PRA #5)
DRUM STORAGE AREAS					
LIQUID REMOVAL POINTS (LRPs)[b]	1				On Fuel Gas Line (Non-Sampled PRA)(Associated with PRA #2)
MERCURY GAS MEASURING/METER					
OTHER AREAS OF VISIBLE STAINING					
FENCE LINES/ROADS					
SURPLUS EQUIPMENT STORAGE AREAS					
FIN FAN UNITS					
SUMPS/CATCH BASINS					
OTHER					

* Add asterisk if source has been removed.

[a] Where equipment is specified as a PRA, then sampling refers to soil in the immediate vicinity of the area.

[b] LRPs include drips, syphons, filter-separators, pig receivers, dehydration units, scrubbers, contactors, slug catchers and associated tanks that are connected to the pipeline, and displacement meters, equipped with drain valves.

Facility: Hagan CS

Record Review: Christopher H. Kupfer, P.G. (Name & Signature) — Baker Environmental, Inc. (Company)

Location/Code: Hagan CS

Site Visit: Christopher H. Kupfer, P.G. (Name & Signature) — Baker Environmental, Inc. (Company)

Presumed by EPA to be contaminated with PCBs: X

Baker

Baker Environmental, Inc.

APPENDIX B

Comprehensive Analytical Reports and Chain-of-Custody Records

Comprehensive Analytical Results

		PRA	1				3		
		PRA Description	PRA #1 1000 GALLON UT				PRA #3 BLOWDOWNS/VENTS		
		Sample Type	Normal Sample				Normal Sample		
		Sample Id	HAG-ASB009-70001		HAG-ASB010-70001		HAG-ASB001-70001		
		Depth - ft bgs	3.6 - 4.6		5.6 - 6.6		0 - 1		
		Result Units	MG/KG		MG/KG		MG/KG		
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim	
VOA	BENZENE	22	0.006 U	0.006	0.006 U	0.006	0.006 UJ	0.006	
	TOLUENE	16000	0.006 U	0.006	0.006 U	0.006	0.006 UJ	0.006	
	ETHYL BENZENE	7800	0.006 U	0.006	0.006 U	0.006	0.006 UJ	0.006	
	XYLENES (TOTAL)	160000	0.006 U	0.006	0.006 U	0.006	0.006 UJ	0.006	
	METHYLENE CHLORIDE	85	0.006 U	0.006	0.006 U	0.006			
	ACETONE	7800	0.13 U	0.13	0.11 U	0.11			
	1,1-DICHLOROETHENE	1.1	0.006 U	0.006	0.006 U	0.006			
	1,2-DICHLOROETHANE	7	0.006 U	0.006	0.006 U	0.006			
	2-BUTANONE	47000	0.13 U	0.13	0.11 U	0.11			
	1,1,1-TRICHLOROETHANE	1600	0.006 U	0.006	0.006 U	0.006			
	CARBON TETRACHLORIDE	4.9	0.006 U	0.006	0.006 U	0.006			
	TRICHLOROETHYLENE (TCE)	58	0.006 U	0.006	0.006 U	0.006			
	1,1,2-TRICHLOROETHANE	11	0.006 U	0.006	0.006 U	0.006			
	4-METHYL-2-PENTANONE	6300	0.065 U	0.065	0.055 U	0.055			
	TETRACHLOROETHYLENE(PCE)	12	0.006 U	0.006	0.006 U	0.006			
	1,1,2,2-TETRACHLOROETHANE	3.2	0.006 U	0.006	0.006 U	0.006			
	CHLOROBENZENE	1600	0.006 U	0.006	0.006 U	0.006			
	1,1,1,2-TETRACHLOROETHANE	25	0.006 U	0.006	0.006 U	0.006			
BNA	NAPHTHALENE	1600	0.45 U	0.45	0.38 U	0.38			

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	1				3	
		PRA Description	PRA #1 1000 GALLON UT				PRA #3 BLOWDOWNS/VENTS	
		Sample Type	Normal Sample				Normal Sample	
		Sample Id	HAG-ASB009-70001		HAG-ASB010-70001		HAG-ASB001-70001	
		Depth - ft bgs	3.6 - 4.6		5.6 - 6.6		0 - 1	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	ACENAPTHYLENE	4700	0.45 U	0.45	0.38 U	0.38		
	ACENAPHTHENE	4700	0.45 U	0.45	0.38 U	0.38		
	FLUORENE	3100	0.45 U	0.45	0.38 U	0.38		
	PHENANTHRENE	23000	0.45 U	0.45	0.38 U	0.38		
	ANTHRACENE	23000	0.45 U	0.45	0.38 U	0.38		
	FLUORANTHENE	3100	0.45 U	0.45	0.38 U	0.38		
	PYRENE	2300	0.45 U	0.45	0.38 U	0.38		
	BENZO(A)ANTHRACENE	.87	0.45 U	0.45	0.38 U	0.38		
	CHRYSENE	87	0.45 U	0.45	0.38 U	0.38		
	BENZO(B)FLUORANTHENE	.87	0.45 U	0.45	0.38 U	0.38		
	BENZO(K)FLUORANTHENE	8.7	0.45 U	0.45	0.38 U	0.38		
	BENZO(A)PYRENE	.087	0.45 U	0.45	0.38 U	0.38		
	DIBENZO(A,H)ANTHRACENE	.087	0.45 U	0.45	0.38 U	0.38		
	BENZO(GHI)PERYLENE	2300	0.45 U	0.45	0.38 U	0.38		
	INDENO(1,2,3-C,D)PYRENE	.87	0.45 U	0.45	0.38 U	0.38		
	PHENOL	47000	0.45 U	0.45	0.38 U	0.38		
	2-METHYLPHENOL (O-CRESOL)	3900	0.45 U	0.45	0.38 U	0.38		
	3- AND/OR 4-METHYLPHENOL	390	0.45 U	0.45	0.38 U	0.38		
	2,4-DICHLOROPHENOL	230	0.45 U	0.45	0.38 U	0.38		

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	1				3	
		PRA Description	PRA #1 1000 GALLON UT				PRA #3 BLOWDOWNS/VENTS	
		Sample Type	Normal Sample				Normal Sample	
		Sample Id	HAG-ASB009-70001		HAG-ASB010-70001		HAG-ASB001-70001	
		Depth - ft bgs	3.6 - 4.6		5.6 - 6.6		0 - 1	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	2,4,6-TRICHLOROPHENOL	58	0.45 U	0.45	0.38 U	0.38		
	2,4,5-TRICHLOROPHENOL	7800	0.45 U	0.45	0.38 U	0.38		
P/PCB	AROCLOR-1016	1	0.044 U	0.044	0.038 U	0.038		
	AROCLOR-1221	1	0.044 U	0.044	0.038 U	0.038		
	AROCLOR-1232	1	0.044 U	0.044	0.038 U	0.038		
	AROCLOR-1242	1	0.044 U	0.044	0.038 U	0.038		
	AROCLOR-1248	1	0.044 U	0.044	0.038 U	0.038		
	AROCLOR-1254	1	0.044 U	0.044	0.038 U	0.038		
	AROCLOR-1260	1	0.044 U	0.044	0.038 U	0.038		
METAL	ANTIMONY, TOTAL	31	13.5 U	13.5	11.5 U	11.5		
	BARIUM, TOTAL	5500	137	1.3	109	1.1		
	BERYLLIUM, TOTAL	160	1.3 U	1.3	1.1 U	1.1		
	CADMIUM, TOTAL	39	1.3 U	1.3	1.1 U	1.1		
	CHROMIUM, TOTAL	230	17.5	2.7	22.8	2.3		
	LEAD, TOTAL	400	26.9 U	26.9	22.9 U	22.9		
	NICKEL, TOTAL	1600	20.0	13.5	24.1	11.5		
	SILVER, TOTAL	390	2.7 U	2.7	2.3 U	2.3		
	MERCURY, TOTAL	20	0.27 U	0.27	0.23 U	0.23		
	ARSENIC, TOTAL	.43	8.1	1.3	12.4	1.1		

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	1				3	
		PRA Description	PRA #1 1000 GALLON UT				PRA #3 BLOWDOWNS/VENTS	
		Sample Type	Normal Sample				Normal Sample	
		Sample Id	HAG-ASB009-70001		HAG-ASB010-70001		HAG-ASB001-70001	
		Depth - ft bgs	3.6 - 4.6		5.6 - 6.6		0 - 1	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
INORGANIC	CYANIDE, TOTAL	1600	0.27 U	0.27	0.23 U	0.23		
	PETROLEUM HYDROCARBON						2300	280

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB001-70002**		**HAG-ASB002-70001**		**HAG-ASB002-70002**	
		Depth - ft bgs	**1.5 - 2.5**		**0 - 1**		**1.5 - 2.5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
VOA	**BENZENE**	22	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	TOLUENE	16000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	ETHYL BENZENE	7800	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	XYLENES (TOTAL)	160000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	METHYLENE CHLORIDE	85						
	ACETONE	7800						
	1,1-DICHLOROETHENE	1.1						
	1,2-DICHLOROETHANE	7						
	2-BUTANONE	47000						
	1,1,1-TRICHLOROETHANE	1600						
	CARBON TETRACHLORIDE	4.9						
	TRICHLOROETHYLENE (TCE)	58						
	1,1,2-TRICHLOROETHANE	11						
	4-METHYL-2-PENTANONE	6300						
	TETRACHLOROETHYLENE(PCE)	12						
	1,1,2,2-TETRACHLOROETHANE	3.2						
	CHLOROBENZENE	1600						
	1,1,1,2-TETRACHLOROETHANE	25						
BNA	**NAPHTHALENE**	1600						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	HAG-ASB001-70002		HAG-ASB002-70001		HAG-ASB002-70002	
		Depth - ft bgs	1.5 - 2.5		0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	ACENAPTHYLENE	4700						
	ACENAPHTHENE	4700						
	FLUORENE	3100						
	PHENANTHRENE	23000						
	ANTHRACENE	23000						
	FLUORANTHENE	3100						
	PYRENE	2300						
	BENZO(A)ANTHRACENE	.87						
	CHRYSENE	87						
	BENZO(B)FLUORANTHENE	.87						
	BENZO(K)FLUORANTHENE	8.7						
	BENZO(A)PYRENE	.087						
	DIBENZO(A,H)ANTHRACENE	.087						
	BENZO(GHI)PERYLENE	2300						
	INDENO(1,2,3-C,D)PYRENE	.87						
	PHENOL	47000						
	2-METHYLPHENOL (O-CRESOL)	3900						
	3- AND/OR 4-METHYLPHENOL	390						
	2,4-DICHLOROPHENOL	230						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	HAG-ASB001-70002		HAG-ASB002-70001		HAG-ASB002-70002	
		Depth - ft bgs	1.5 - 2.5		0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	2,4,6-TRICHLOROPHENOL	58						
	2,4,5-TRICHLOROPHENOL	7800						
P/PCB	AROCLOR-1016	1						
	AROCLOR-1221	1						
	AROCLOR-1232	1						
	AROCLOR-1242	1						
	AROCLOR-1248	1						
	AROCLOR-1254	1						
	AROCLOR-1260	1						
METAL	ANTIMONY, TOTAL	31						
	BARIUM, TOTAL	5500						
	BERYLLIUM, TOTAL	160						
	CADMIUM, TOTAL	39						
	CHROMIUM, TOTAL	230						
	LEAD, TOTAL	400						
	NICKEL, TOTAL	1600						
	SILVER, TOTAL	390						
	MERCURY, TOTAL	20						
	ARSENIC, TOTAL	.43						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB001-70002**		**HAG-ASB002-70001**		**HAG-ASB002-70002**	
		Depth - ft bgs	**1.5 - 2.5**		**0 - 1**		**1.5 - 2.5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
INORGANIC	**CYANIDE, TOTAL**	1600						
	PETROLEUM HYDROCARBON		1600	280	12.0 U	12.0	200	24.0

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB003-70001**		**HAG-ASB003-70002**		**HAG-ASB004-70001**	
		Depth - ft bgs	**0 - 1**		**1.5 - 2.5**		**0 - 1**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
VOA	**BENZENE**	22	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	TOLUENE	16000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	ETHYL BENZENE	7800	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	XYLENES (TOTAL)	160000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	METHYLENE CHLORIDE	85						
	ACETONE	7800						
	1,1-DICHLOROETHENE	1.1						
	1,2-DICHLOROETHANE	7						
	2-BUTANONE	47000						
	1,1,1-TRICHLOROETHANE	1600						
	CARBON TETRACHLORIDE	4.9						
	TRICHLOROETHYLENE (TCE)	58						
	1,1,2-TRICHLOROETHANE	11						
	4-METHYL-2-PENTANONE	6300						
	TETRACHLOROETHYLENE(PCE)	12						
	1,1,2,2-TETRACHLOROETHANE	3.2						
	CHLOROBENZENE	1600						
	1,1,1,2-TETRACHLOROETHANE	25						
BNA	**NAPHTHALENE**	1600						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	HAG-ASB003-70001		HAG-ASB003-70002		HAG-ASB004-70001	
		Depth - ft bgs	0 - 1		1.5 - 2.5		0 - 1	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	ACENAPTHYLENE	4700						
	ACENAPHTHENE	4700						
	FLUORENE	3100						
	PHENANTHRENE	23000						
	ANTHRACENE	23000						
	FLUORANTHENE	3100						
	PYRENE	2300						
	BENZO(A)ANTHRACENE	.87						
	CHRYSENE	87						
	BENZO(B)FLUORANTHENE	.87						
	BENZO(K)FLUORANTHENE	8.7						
	BENZO(A)PYRENE	.087						
	DIBENZO(A,H)ANTHRACENE	.087						
	BENZO(GHI)PERYLENE	2300						
	INDENO(1,2,3-C,D)PYRENE	.87						
	PHENOL	47000						
	2-METHYLPHENOL (O-CRESOL)	3900						
	3- AND/OR 4-METHYLPHENOL	390						
	2,4-DICHLOROPHENOL	230						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	HAG-ASB003-70001		HAG-ASB003-70002		HAG-ASB004-70001	
		Depth - ft bgs	0 - 1		1.5 - 2.5		0 - 1	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	2,4,6-TRICHLOROPHENOL	58						
	2,4,5-TRICHLOROPHENOL	7800						
P/PCB	AROCLOR-1016	1						
	AROCLOR-1221	1						
	AROCLOR-1232	1						
	AROCLOR-1242	1						
	AROCLOR-1248	1						
	AROCLOR-1254	1						
	AROCLOR-1260	1						
METAL	ANTIMONY, TOTAL	31						
	BARIUM, TOTAL	5500						
	BERYLLIUM, TOTAL	160						
	CADMIUM, TOTAL	39						
	CHROMIUM, TOTAL	230						
	LEAD, TOTAL	400						
	NICKEL, TOTAL	1600						
	SILVER, TOTAL	390						
	MERCURY, TOTAL	20						
	ARSENIC, TOTAL	.43						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB003-70001**		**HAG-ASB003-70002**		**HAG-ASB004-70001**	
		Depth - ft bgs	**0 - 1**		**1.5 - 2.5**		**0 - 1**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
INORGANIC	**CYANIDE, TOTAL**	1600						
	PETROLEUM HYDROCARBON		12.0 U	12.0	12.0 U	12.0	12.0 U	12.0

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB004-70002**		**HAG-ASB005-70001**		**HAG-ASB005-70002**	
		Depth - ft bgs	**1.5 - 2.5**		**0 - 1**		**1.5 - 2.5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
VOA	**BENZENE**	22	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	TOLUENE	16000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	ETHYL BENZENE	7800	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	XYLENES (TOTAL)	160000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	METHYLENE CHLORIDE	85						
	ACETONE	7800						
	1,1-DICHLOROETHENE	1.1						
	1,2-DICHLOROETHANE	7						
	2-BUTANONE	47000						
	1,1,1-TRICHLOROETHANE	1600						
	CARBON TETRACHLORIDE	4.9						
	TRICHLOROETHYLENE (TCE)	58						
	1,1,2-TRICHLOROETHANE	11						
	4-METHYL-2-PENTANONE	6300						
	TETRACHLOROETHYLENE(PCE)	12						
	1,1,2,2-TETRACHLOROETHANE	3.2						
	CHLOROBENZENE	1600						
	1,1,1,2-TETRACHLOROETHANE	25						
BNA	**NAPHTHALENE**	1600						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	HAG-ASB004-70002		HAG-ASB005-70001		HAG-ASB005-70002	
		Depth - ft bgs	1.5 - 2.5		0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	ACENAPTHYLENE	4700						
	ACENAPHTHENE	4700						
	FLUORENE	3100						
	PHENANTHRENE	23000						
	ANTHRACENE	23000						
	FLUORANTHENE	3100						
	PYRENE	2300						
	BENZO(A)ANTHRACENE	.87						
	CHRYSENE	87						
	BENZO(B)FLUORANTHENE	.87						
	BENZO(K)FLUORANTHENE	8.7						
	BENZO(A)PYRENE	.087						
	DIBENZO(A,H)ANTHRACENE	.087						
	BENZO(GHI)PERYLENE	2300						
	INDENO(1,2,3-C,D)PYRENE	.87						
	PHENOL	47000						
	2-METHYLPHENOL (O-CRESOL)	3900						
	3- AND/OR 4-METHYLPHENOL	390						
	2,4-DICHLOROPHENOL	230						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	HAG-ASB004-70002		HAG-ASB005-70001		HAG-ASB005-70002	
		Depth - ft bgs	1.5 - 2.5		0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	2,4,6-TRICHLOROPHENOL	58						
	2,4,5-TRICHLOROPHENOL	7800						
P/PCB	AROCLOR-1016	1						
	AROCLOR-1221	1						
	AROCLOR-1232	1						
	AROCLOR-1242	1						
	AROCLOR-1248	1						
	AROCLOR-1254	1						
	AROCLOR-1260	1						
METAL	ANTIMONY, TOTAL	31						
	BARIUM, TOTAL	5500						
	BERYLLIUM, TOTAL	160						
	CADMIUM, TOTAL	39						
	CHROMIUM, TOTAL	230						
	LEAD, TOTAL	400						
	NICKEL, TOTAL	1600						
	SILVER, TOTAL	390						
	MERCURY, TOTAL	20						
	ARSENIC, TOTAL	.43						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB004-70002**		**HAG-ASB005-70001**		**HAG-ASB005-70002**	
		Depth - ft bgs	**1.5 - 2.5**		**0 - 1**		**1.5 - 2.5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
INORGANIC	**CYANIDE, TOTAL**	1600						
	PETROLEUM HYDROCARBON		13.0 U	13.0	12.0 U	12.0	12.0 U	12.0

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	**4**					
		PRA Description	**PRA #4 OIL PUMP AREA**					
		Sample Type	**Normal Sample**					
		Sample Id	**HAG-ASB012-70001**		**HAG-ASB012-70002**		**HAG-ASB012-70003**	
		Depth - ft bgs	**0 - 1**		**1.5 - 2.5**		**4 - 5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
VOA	**BENZENE**	22	0.006 U	0.006	0.006 U	0.006	0.77 U	0.77
	TOLUENE	16000	0.006 U	0.006	0.006 U	0.006	0.77 U	0.77
	ETHYL BENZENE	7800	0.006 U	0.006	0.006 U	0.006	0.77 U	0.77
	XYLENES (TOTAL)	160000	0.006 U	0.006	0.006 U	0.006	0.77 U	0.77
	METHYLENE CHLORIDE	85						
	ACETONE	7800						
	1,1-DICHLOROETHENE	1.1						
	1,2-DICHLOROETHANE	7						
	2-BUTANONE	47000						
	1,1,1-TRICHLOROETHANE	1600						
	CARBON TETRACHLORIDE	4.9						
	TRICHLOROETHYLENE (TCE)	58						
	1,1,2-TRICHLOROETHANE	11						
	4-METHYL-2-PENTANONE	6300						
	TETRACHLOROETHYLENE(PCE)	12						
	1,1,2,2-TETRACHLOROETHANE	3.2						
	CHLOROBENZENE	1600						
	1,1,1,2-TETRACHLOROETHANE	25						
BNA	**NAPHTHALENE**	1600						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	4					
		PRA Description	PRA #4 OIL PUMP AREA					
		Sample Type	Normal Sample					
		Sample Id	HAG-ASB012-70001		HAG-ASB012-70002		HAG-ASB012-70003	
		Depth - ft bgs	0 - 1		1.5 - 2.5		4 - 5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	ACENAPTHYLENE	4700						
	ACENAPHTHENE	4700						
	FLUORENE	3100						
	PHENANTHRENE	23000						
	ANTHRACENE	23000						
	FLUORANTHENE	3100						
	PYRENE	2300						
	BENZO(A)ANTHRACENE	.87						
	CHRYSENE	87						
	BENZO(B)FLUORANTHENE	.87						
	BENZO(K)FLUORANTHENE	8.7						
	BENZO(A)PYRENE	.087						
	DIBENZO(A,H)ANTHRACENE	.087						
	BENZO(GHI)PERYLENE	2300						
	INDENO(1,2,3-C,D)PYRENE	.87						
	PHENOL	47000						
	2-METHYLPHENOL (O-CRESOL)	3900						
	3- AND/OR 4-METHYLPHENOL	390						
	2,4-DICHLOROPHENOL	230						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	4					
		PRA Description	PRA #4 OIL PUMP AREA					
		Sample Type	Normal Sample					
		Sample Id	HAG-ASB012-70001		HAG-ASB012-70002		HAG-ASB012-70003	
		Depth - ft bgs	0 - 1		1.5 - 2.5		4 - 5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	2,4,6-TRICHLOROPHENOL	58						
	2,4,5-TRICHLOROPHENOL	7800						
P/PCB	AROCLOR-1016	1						
	AROCLOR-1221	1						
	AROCLOR-1232	1						
	AROCLOR-1242	1						
	AROCLOR-1248	1						
	AROCLOR-1254	1						
	AROCLOR-1260	1						
METAL	ANTIMONY, TOTAL	31						
	BARIUM, TOTAL	5500						
	BERYLLIUM, TOTAL	160						
	CADMIUM, TOTAL	39						
	CHROMIUM, TOTAL	230						
	LEAD, TOTAL	400						
	NICKEL, TOTAL	1600						
	SILVER, TOTAL	390						
	MERCURY, TOTAL	20						
	ARSENIC, TOTAL	.43						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	**4**					
		PRA Description	**PRA #4 OIL PUMP AREA**					
		Sample Type	**Normal Sample**					
		Sample Id	**HAG-ASB012-70001**		**HAG-ASB012-70002**		**HAG-ASB012-70003**	
		Depth - ft bgs	**0 - 1**		**1.5 - 2.5**		**4 - 5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
INORGANIC	**CYANIDE, TOTAL**	1600						
	PETROLEUM HYDROCARBON		12.0 U	12.0	12.0 U	12.0	29.0	12.0

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	5					
		PRA Description	PRA #5 AIR TANK/OLD PAD AREA					
		Sample Type	Field Duplicate (Rep)		Normal Sample			
		Sample Id	HAG-ASB008-71002		HAG-ASB006-70001		HAG-ASB006-70002	
		Depth - ft bgs	1.5 - 2.5		0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
VOA	BENZENE	22	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	TOLUENE	16000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	ETHYL BENZENE	7800	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	XYLENES (TOTAL)	160000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	METHYLENE CHLORIDE	85						
	ACETONE	7800						
	1,1-DICHLOROETHENE	1.1						
	1,2-DICHLOROETHANE	7						
	2-BUTANONE	47000						
	1,1,1-TRICHLOROETHANE	1600						
	CARBON TETRACHLORIDE	4.9						
	TRICHLOROETHYLENE (TCE)	58						
	1,1,2-TRICHLOROETHANE	11						
	4-METHYL-2-PENTANONE	6300						
	TETRACHLOROETHYLENE(PCE)	12						
	1,1,2,2-TETRACHLOROETHANE	3.2						
	CHLOROBENZENE	1600						
	1,1,1,2-TETRACHLOROETHANE	25						
BNA	NAPHTHALENE	1600						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	5					
		PRA Description	PRA #5 AIR TANK/OLD PAD AREA					
		Sample Type	Field Duplicate (Rep)		Normal Sample			
		Sample Id	HAG-ASB008-71002		HAG-ASB006-70001		HAG-ASB006-70002	
		Depth - ft bgs	1.5 - 2.5		0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	ACENAPTHYLENE	4700						
	ACENAPHTHENE	4700						
	FLUORENE	3100						
	PHENANTHRENE	23000						
	ANTHRACENE	23000						
	FLUORANTHENE	3100						
	PYRENE	2300						
	BENZO(A)ANTHRACENE	.87						
	CHRYSENE	87						
	BENZO(B)FLUORANTHENE	.87						
	BENZO(K)FLUORANTHENE	8.7						
	BENZO(A)PYRENE	.087						
	DIBENZO(A,H)ANTHRACENE	.087						
	BENZO(GHI)PERYLENE	2300						
	INDENO(1,2,3-C,D)PYRENE	.87						
	PHENOL	47000						
	2-METHYLPHENOL (O-CRESOL)	3900						
	3- AND/OR 4-METHYLPHENOL	390						
	2,4-DICHLOROPHENOL	230						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	5					
		PRA Description	PRA #5 AIR TANK/OLD PAD AREA					
		Sample Type	Field Duplicate (Rep)		Normal Sample			
		Sample Id	HAG-ASB008-71002		HAG-ASB006-70001		HAG-ASB006-70002	
		Depth - ft bgs	1.5 - 2.5		0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	2,4,6-TRICHLOROPHENOL	58						
	2,4,5-TRICHLOROPHENOL	7800						
P/PCB	AROCLOR-1016	1						
	AROCLOR-1221	1						
	AROCLOR-1232	1						
	AROCLOR-1242	1						
	AROCLOR-1248	1						
	AROCLOR-1254	1						
	AROCLOR-1260	1						
METAL	ANTIMONY, TOTAL	31						
	BARIUM, TOTAL	5500						
	BERYLLIUM, TOTAL	160						
	CADMIUM, TOTAL	39						
	CHROMIUM, TOTAL	230						
	LEAD, TOTAL	400						
	NICKEL, TOTAL	1600						
	SILVER, TOTAL	390						
	MERCURY, TOTAL	20						
	ARSENIC, TOTAL	.43						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	5					
		PRA Description	PRA #5 AIR TANK/OLD PAD AREA					
		Sample Type	Field Duplicate (Rep)		Normal Sample			
		Sample Id	HAG-ASB008-71002		HAG-ASB006-70001		HAG-ASB006-70002	
		Depth - ft bgs	1.5 - 2.5		0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
INORGANIC	CYANIDE, TOTAL	1600						
	PETROLEUM HYDROCARBON		88.0	12.0	12.0 U	12.0	12.0 U	12.0

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB006-70003**		**HAG-ASB007-70001**		**HAG-ASB007-70002**	
		Depth - ft bgs	**4 - 5**		**0 - 1**		**1.5 - 2.5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
VOA	**BENZENE**	22	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	TOLUENE	16000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	ETHYL BENZENE	7800	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	XYLENES (TOTAL)	160000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	METHYLENE CHLORIDE	85						
	ACETONE	7800						
	1,1-DICHLOROETHENE	1.1						
	1,2-DICHLOROETHANE	7						
	2-BUTANONE	47000						
	1,1,1-TRICHLOROETHANE	1600						
	CARBON TETRACHLORIDE	4.9						
	TRICHLOROETHYLENE (TCE)	58						
	1,1,2-TRICHLOROETHANE	11						
	4-METHYL-2-PENTANONE	6300						
	TETRACHLOROETHYLENE(PCE)	12						
	1,1,2,2-TETRACHLOROETHANE	3.2						
	CHLOROBENZENE	1600						
	1,1,1,2-TETRACHLOROETHANE	25						
BNA	**NAPHTHALENE**	1600						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	HAG-ASB006-70003		HAG-ASB007-70001		HAG-ASB007-70002	
		Depth - ft bgs	4 - 5		0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	ACENAPTHYLENE	4700						
	ACENAPHTHENE	4700						
	FLUORENE	3100						
	PHENANTHRENE	23000						
	ANTHRACENE	23000						
	FLUORANTHENE	3100						
	PYRENE	2300						
	BENZO(A)ANTHRACENE	.87						
	CHRYSENE	87						
	BENZO(B)FLUORANTHENE	.87						
	BENZO(K)FLUORANTHENE	8.7						
	BENZO(A)PYRENE	.087						
	DIBENZO(A,H)ANTHRACENE	.087						
	BENZO(GHI)PERYLENE	2300						
	INDENO(1,2,3-C,D)PYRENE	.87						
	PHENOL	47000						
	2-METHYLPHENOL (O-CRESOL)	3900						
	3- AND/OR 4-METHYLPHENOL	390						
	2,4-DICHLOROPHENOL	230						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	HAG-ASB006-70003		HAG-ASB007-70001		HAG-ASB007-70002	
		Depth - ft bgs	4 - 5		0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	2,4,6-TRICHLOROPHENOL	58						
	2,4,5-TRICHLOROPHENOL	7800						
P/PCB	AROCLOR-1016	1						
	AROCLOR-1221	1						
	AROCLOR-1232	1						
	AROCLOR-1242	1						
	AROCLOR-1248	1						
	AROCLOR-1254	1						
	AROCLOR-1260	1						
METAL	ANTIMONY, TOTAL	31						
	BARIUM, TOTAL	5500						
	BERYLLIUM, TOTAL	160						
	CADMIUM, TOTAL	39						
	CHROMIUM, TOTAL	230						
	LEAD, TOTAL	400						
	NICKEL, TOTAL	1600						
	SILVER, TOTAL	390						
	MERCURY, TOTAL	20						
	ARSENIC, TOTAL	.43						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB006-70003**		**HAG-ASB007-70001**		**HAG-ASB007-70002**	
		Depth - ft bgs	**4 - 5**		**0 - 1**		**1.5 - 2.5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
INORGANIC	**CYANIDE, TOTAL**	1600						
	PETROLEUM HYDROCARBON		12.0 U	12.0	12.0 U	12.0	12.0 U	12.0

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB008-70001**		**HAG-ASB008-70002**		**HAG-ASB008-70003**	
		Depth - ft bgs	**0 - 1**		**1.5 - 2.5**		**4 - 5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
VOA	**BENZENE**	22	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	TOLUENE	16000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	ETHYL BENZENE	7800	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	XYLENES (TOTAL)	160000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	METHYLENE CHLORIDE	85						
	ACETONE	7800						
	1,1-DICHLOROETHENE	1.1						
	1,2-DICHLOROETHANE	7						
	2-BUTANONE	47000						
	1,1,1-TRICHLOROETHANE	1600						
	CARBON TETRACHLORIDE	4.9						
	TRICHLOROETHYLENE (TCE)	58						
	1,1,2-TRICHLOROETHANE	11						
	4-METHYL-2-PENTANONE	6300						
	TETRACHLOROETHYLENE(PCE)	12						
	1,1,2,2-TETRACHLOROETHANE	3.2						
	CHLOROBENZENE	1600						
	1,1,1,2-TETRACHLOROETHANE	25						
BNA	**NAPHTHALENE**	1600						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	HAG-ASB008-70001		HAG-ASB008-70002		HAG-ASB008-70003	
		Depth - ft bgs	0 - 1		1.5 - 2.5		4 - 5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	ACENAPTHYLENE	4700						
	ACENAPHTHENE	4700						
	FLUORENE	3100						
	PHENANTHRENE	23000						
	ANTHRACENE	23000						
	FLUORANTHENE	3100						
	PYRENE	2300						
	BENZO(A)ANTHRACENE	.87						
	CHRYSENE	87						
	BENZO(B)FLUORANTHENE	.87						
	BENZO(K)FLUORANTHENE	8.7						
	BENZO(A)PYRENE	.087						
	DIBENZO(A,H)ANTHRACENE	.087						
	BENZO(GHI)PERYLENE	2300						
	INDENO(1,2,3-C,D)PYRENE	.87						
	PHENOL	47000						
	2-METHYLPHENOL (O-CRESOL)	3900						
	3- AND/OR 4-METHYLPHENOL	390						
	2,4-DICHLOROPHENOL	230						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	HAG-ASB008-70001		HAG-ASB008-70002		HAG-ASB008-70003	
		Depth - ft bgs	0 - 1		1.5 - 2.5		4 - 5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	2,4,6-TRICHLOROPHENOL	58						
	2,4,5-TRICHLOROPHENOL	7800						
P/PCB	AROCLOR-1016	1						
	AROCLOR-1221	1						
	AROCLOR-1232	1						
	AROCLOR-1242	1						
	AROCLOR-1248	1						
	AROCLOR-1254	1						
	AROCLOR-1260	1						
METAL	ANTIMONY, TOTAL	31						
	BARIUM, TOTAL	5500						
	BERYLLIUM, TOTAL	160						
	CADMIUM, TOTAL	39						
	CHROMIUM, TOTAL	230						
	LEAD, TOTAL	400						
	NICKEL, TOTAL	1600						
	SILVER, TOTAL	390						
	MERCURY, TOTAL	20						
	ARSENIC, TOTAL	.43						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA						
		PRA Description						
		Sample Type						
		Sample Id	**HAG-ASB008-70001**		**HAG-ASB008-70002**		**HAG-ASB008-70003**	
		Depth - ft bgs	**0 - 1**		**1.5 - 2.5**		**4 - 5**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
INORGANIC	**CYANIDE, TOTAL**	1600						
	PETROLEUM HYDROCARBON		930	310	12.0 U	12.0	16.0	12.0

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	6					
		PRA Description	BACKGROUND					
		Sample Type	Normal Sample					
		Sample Id	HAG-ASB013-70001		HAG-ASB014-70001		HAG-ASB015-70001	
		Depth - ft bgs	1 - 3		1 - 3		1 - 3	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
VOA	BENZENE	22	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	TOLUENE	16000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	ETHYL BENZENE	7800	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	XYLENES (TOTAL)	160000	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	METHYLENE CHLORIDE	85	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	ACETONE	7800	0.11 U	0.11	0.11 U	0.11	0.12 U	0.12
	1,1-DICHLOROETHENE	1.1	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	1,2-DICHLOROETHANE	7	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	2-BUTANONE	47000	0.11 U	0.11	0.11 U	0.11	0.12 U	0.12
	1,1,1-TRICHLOROETHANE	1600	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	CARBON TETRACHLORIDE	4.9	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	TRICHLOROETHYLENE (TCE)	58	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	1,1,2-TRICHLOROETHANE	11	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	4-METHYL-2-PENTANONE	6300	0.056 U	0.056	0.057 U	0.057	0.058 U	0.058
	TETRACHLOROETHYLENE(PCE)	12	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	1,1,2,2-TETRACHLOROETHANE	3.2	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	CHLOROBENZENE	1600	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
	1,1,1,2-TETRACHLOROETHANE	25	0.006 U	0.006	0.006 U	0.006	0.006 U	0.006
BNA	NAPHTHALENE	1600	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	**6**					
		PRA Description	**BACKGROUND**					
		Sample Type	**Normal Sample**					
		Sample Id	**HAG-ASB013-70001**		**HAG-ASB014-70001**		**HAG-ASB015-70001**	
		Depth - ft bgs	**1 - 3**		**1 - 3**		**1 - 3**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
	ACENAPTHYLENE	4700	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	ACENAPHTHENE	4700	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	FLUORENE	3100	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	PHENANTHRENE	23000	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	ANTHRACENE	23000	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	FLUORANTHENE	3100	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	PYRENE	2300	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	BENZO(A)ANTHRACENE	.87	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	CHRYSENE	87	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	BENZO(B)FLUORANTHENE	.87	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	BENZO(K)FLUORANTHENE	8.7	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	BENZO(A)PYRENE	.087	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	DIBENZO(A,H)ANTHRACENE	.087	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	BENZO(GHI)PERYLENE	2300	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	INDENO(1,2,3-C,D)PYRENE	.87	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	PHENOL	47000	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	2-METHYLPHENOL (O-CRESOL)	3900	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	3- AND/OR 4-METHYLPHENOL	390	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	2,4-DICHLOROPHENOL	230	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	6					
		PRA Description	BACKGROUND					
		Sample Type	Normal Sample					
		Sample Id	HAG-ASB013-70001		HAG-ASB014-70001		HAG-ASB015-70001	
		Depth - ft bgs	1 - 3		1 - 3		1 - 3	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	2,4,6-TRICHLOROPHENOL	58	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
	2,4,5-TRICHLOROPHENOL	7800	0.37 U	0.37	0.38 U	0.38	0.39 U	0.39
P/PCB	AROCLOR-1016	1	0.038 U	0.038	0.038 U	0.038	0.039 U	0.039
	AROCLOR-1221	1	0.038 U	0.038	0.038 U	0.038	0.039 U	0.039
	AROCLOR-1232	1	0.038 U	0.038	0.038 U	0.038	0.039 U	0.039
	AROCLOR-1242	1	0.038 U	0.038	0.038 U	0.038	0.039 U	0.039
	AROCLOR-1248	1	0.038 U	0.038	0.038 U	0.038	0.039 U	0.039
	AROCLOR-1254	1	0.038 U	0.038	0.038 U	0.038	0.039 U	0.039
	AROCLOR-1260	1	0.038 U	0.038	0.038 U	0.038	0.039 U	0.039
METAL	ANTIMONY, TOTAL	31	11.4 U	11.4	11.5 U	11.5	11.9 U	11.9
	BARIUM, TOTAL	5500	140	1.1	151	1.2	81.8	1.2
	BERYLLIUM, TOTAL	160	1.2	1.1	1.2	1.2	1.2 U	1.2
	CADMIUM, TOTAL	39	1.1 U	1.1	1.2 U	1.2	1.2 U	1.2
	CHROMIUM, TOTAL	230	22.8	2.3	23.0	2.3	22.1	2.4
	LEAD, TOTAL	400	22.8 U	22.8	23.0 U	23.0	23.7 U	23.7
	NICKEL, TOTAL	1600	25.0	11.4	27.3	11.5	26.0	11.9
	SILVER, TOTAL	390	2.3 U	2.3	2.3 U	2.3	2.4 U	2.4
	MERCURY, TOTAL	20	0.23 U	0.23	0.23 U	0.23	0.24 U	0.24
	ARSENIC, TOTAL	.43	25.2	1.1	9.5	1.2	11.9	1.2

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	**6**					
		PRA Description	**BACKGROUND**					
		Sample Type	**Normal Sample**					
		Sample Id	**HAG-ASB013-70001**		**HAG-ASB014-70001**		**HAG-ASB015-70001**	
		Depth - ft bgs	**1 - 3**		**1 - 3**		**1 - 3**	
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
INORGANIC	**CYANIDE, TOTAL**	1600	0.23 U	0.23	0.23 U	0.23	0.24 U	0.24
	PETROLEUM HYDROCARBON							

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	7					
		PRA Description	PRA #7 RANDOM PCB SAMPLES					
		Sample Type	Normal Sample					
		Sample Id	HAG-ASS005-40001		HAG-ASS014-40001		HAG-ASS015-40001	
		Depth - ft bgs	0 - .5		0 - .5		0 - .5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
VOA	BENZENE	22						
	TOLUENE	16000						
	ETHYL BENZENE	7800						
	XYLENES (TOTAL)	160000						
	METHYLENE CHLORIDE	85						
	ACETONE	7800						
	1,1-DICHLOROETHENE	1.1						
	1,2-DICHLOROETHANE	7						
	2-BUTANONE	47000						
	1,1,1-TRICHLOROETHANE	1600						
	CARBON TETRACHLORIDE	4.9						
	TRICHLOROETHYLENE (TCE)	58						
	1,1,2-TRICHLOROETHANE	11						
	4-METHYL-2-PENTANONE	6300						
	TETRACHLOROETHYLENE(PCE)	12						
	1,1,2,2-TETRACHLOROETHANE	3.2						
	CHLOROBENZENE	1600						
	1,1,1,2-TETRACHLOROETHANE	25						
BNA	NAPHTHALENE	1600						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	7					
		PRA Description	PRA #7 RANDOM PCB SAMPLES					
		Sample Type	Normal Sample					
		Sample Id	HAG-ASS005-40001		HAG-ASS014-40001		HAG-ASS015-40001	
		Depth - ft bgs	0 - .5		0 - .5		0 - .5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	ACENAPTHYLENE	4700						
	ACENAPHTHENE	4700						
	FLUORENE	3100						
	PHENANTHRENE	23000						
	ANTHRACENE	23000						
	FLUORANTHENE	3100						
	PYRENE	2300						
	BENZO(A)ANTHRACENE	.87						
	CHRYSENE	87						
	BENZO(B)FLUORANTHENE	.87						
	BENZO(K)FLUORANTHENE	8.7						
	BENZO(A)PYRENE	.087						
	DIBENZO(A,H)ANTHRACENE	.087						
	BENZO(GHI)PERYLENE	2300						
	INDENO(1,2,3-C,D)PYRENE	.87						
	PHENOL	47000						
	2-METHYLPHENOL (O-CRESOL)	3900						
	3- AND/OR 4-METHYLPHENOL	390						
	2,4-DICHLOROPHENOL	230						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	7					
		PRA Description	PRA #7 RANDOM PCB SAMPLES					
		Sample Type	Normal Sample					
		Sample Id	HAG-ASS005-40001		HAG-ASS014-40001		HAG-ASS015-40001	
		Depth - ft bgs	0 - .5		0 - .5		0 - .5	
		Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim	Result Flag	Det Lim
	2,4,6-TRICHLOROPHENOL	58						
	2,4,5-TRICHLOROPHENOL	7800						
P/PCB	AROCLOR-1016	1	0.038 U	0.038	0.037 UJ	0.037	0.037 UJ	0.037
	AROCLOR-1221	1	0.038 U	0.038	0.037 UJ	0.037	0.037 UJ	0.037
	AROCLOR-1232	1	0.038 U	0.038	0.037 UJ	0.037	0.037 UJ	0.037
	AROCLOR-1242	1	0.038 U	0.038	0.037 UJ	0.037	0.037 UJ	0.037
	AROCLOR-1248	1	0.038 U	0.038	0.037 UJ	0.037	0.037 UJ	0.037
	AROCLOR-1254	1	0.038 U	0.038	0.037 UJ	0.037	0.037 UJ	0.037
	AROCLOR-1260	1	0.038 U	0.038	0.037 UJ	0.037	0.037 UJ	0.037
METAL	ANTIMONY, TOTAL	31						
	BARIUM, TOTAL	5500						
	BERYLLIUM, TOTAL	160						
	CADMIUM, TOTAL	39						
	CHROMIUM, TOTAL	230						
	LEAD, TOTAL	400						
	NICKEL, TOTAL	1600						
	SILVER, TOTAL	390						
	MERCURY, TOTAL	20						
	ARSENIC, TOTAL	.43						

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	**7**						
		PRA Description	**PRA #7 RANDOM PCB SAMPLES**						
		Sample Type	**Normal Sample**						
		Sample Id	**HAG-ASS005-40001**		**HAG-ASS014-40001**		**HAG-ASS015-40001**		
		Depth - ft bgs	**0 - .5**		**0 - .5**		**0 - .5**		
		Result Units	**MG/KG**		**MG/KG**		**MG/KG**		
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**	
INORGANIC	**CYANIDE, TOTAL**	1600							
	PETROLEUM HYDROCARBON								

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	8			
		PRA Description	PRA #8 MAKE UP OIL AT (55 GALLON)			
		Sample Type	Normal Sample			
		Sample Id	HAG-ASB011-70001		HAG-ASB011-70002	
		Depth - ft bgs	0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim
VOA	BENZENE	22	0.006 UJ	0.006	0.006 U	0.006
	TOLUENE	16000	0.006 UJ	0.006	0.006 U	0.006
	ETHYL BENZENE	7800	0.006 UJ	0.006	0.006 U	0.006
	XYLENES (TOTAL)	160000	0.006 UJ	0.006	0.006 U	0.006
	METHYLENE CHLORIDE	85				
	ACETONE	7800				
	1,1-DICHLOROETHENE	1.1				
	1,2-DICHLOROETHANE	7				
	2-BUTANONE	47000				
	1,1,1-TRICHLOROETHANE	1600				
	CARBON TETRACHLORIDE	4.9				
	TRICHLOROETHYLENE (TCE)	58				
	1,1,2-TRICHLOROETHANE	11				
	4-METHYL-2-PENTANONE	6300				
	TETRACHLOROETHYLENE(PCE)	12				
	1,1,2,2-TETRACHLOROETHANE	3.2				
	CHLOROBENZENE	1600				
	1,1,1,2-TETRACHLOROETHANE	25				
BNA	NAPHTHALENE	1600				

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	8			
		PRA Description	PRA #8 MAKE UP OIL AT (55 GALLON)			
		Sample Type	Normal Sample			
		Sample Id	HAG-ASB011-70001		HAG-ASB011-70002	
		Depth - ft bgs	0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim
	ACENAPTHYLENE	4700				
	ACENAPHTHENE	4700				
	FLUORENE	3100				
	PHENANTHRENE	23000				
	ANTHRACENE	23000				
	FLUORANTHENE	3100				
	PYRENE	2300				
	BENZO(A)ANTHRACENE	.87				
	CHRYSENE	87				
	BENZO(B)FLUORANTHENE	.87				
	BENZO(K)FLUORANTHENE	8.7				
	BENZO(A)PYRENE	.087				
	DIBENZO(A,H)ANTHRACENE	.087				
	BENZO(GHI)PERYLENE	2300				
	INDENO(1,2,3-C,D)PYRENE	.87				
	PHENOL	47000				
	2-METHYLPHENOL (O-CRESOL)	3900				
	3- AND/OR 4-METHYLPHENOL	390				
	2,4-DICHLOROPHENOL	230				

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	8			
		PRA Description	PRA #8 MAKE UP OIL AT (55 GALLON)			
		Sample Type	Normal Sample			
		Sample Id	HAG-ASB011-70001		HAG-ASB011-70002	
		Depth - ft bgs	0 - 1		1.5 - 2.5	
		Result Units	MG/KG		MG/KG	
Category	Analyte	Action Level	Result Flag	Det Lim	Result Flag	Det Lim
	2,4,6-TRICHLOROPHENOL	58				
	2,4,5-TRICHLOROPHENOL	7800				
P/PCB	AROCLOR-1016	1				
	AROCLOR-1221	1				
	AROCLOR-1232	1				
	AROCLOR-1242	1				
	AROCLOR-1248	1				
	AROCLOR-1254	1				
	AROCLOR-1260	1				
METAL	ANTIMONY, TOTAL	31				
	BARIUM, TOTAL	5500				
	BERYLLIUM, TOTAL	160				
	CADMIUM, TOTAL	39				
	CHROMIUM, TOTAL	230				
	LEAD, TOTAL	400				
	NICKEL, TOTAL	1600				
	SILVER, TOTAL	390				
	MERCURY, TOTAL	20				
	ARSENIC, TOTAL	.43				

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

Comprehensive Analytical Results

		PRA	**8**			
		PRA Description	**PRA #8 MAKE UP OIL AT (55 GALLON)**			
		Sample Type	**Normal Sample**			
		Sample Id	**HAG-ASB011-70001**		**HAG-ASB011-70002**	
		Depth - ft bgs	**0 - 1**		**1.5 - 2.5**	
		Result Units	**MG/KG**		**MG/KG**	
Category	Analyte	Action Level	**Result Flag**	**Det Lim**	**Result Flag**	**Det Lim**
INORGANIC	**CYANIDE, TOTAL**	1600				
	PETROLEUM HYDROCARBON		540	640	12.0 U	12.0

Note:

Blank cells in result column indicate an analysis was not performed for that analyte.

ORGANIC DATA TABLE NOTES

CATEGORY:

BNA: Base/Neutral/Acid (BNA) extractable compounds are a sub-classification of Semi-Volatile Organic Compounds (SVOCs), and are referenced throughout the text as SVOCs.

P/PCB: Category refers to Pesticides/PCB analysis, however, no pesticides were analyzed for this site.

QUALIFIER FLAGS:

U This compound was not detected at or above the associated reporting limit or this compound should be considered "not-detected" since it was detected in an associated blank at a similar level.

J Quantitation is approximate due to limitations identified during the quality assurance review (data validation) or data verification process.

J+ Quantitation is approximate and may be biased high, due to limitations identified during the quality assurance review (data validation) or data verification process.

J- Quantitation is approximate and may be biased low, due to limitations identified during the quality assurance review (data validation) or data verification process.

R Unusable result; compound may or may not be present in this sample.

UJ This compound was not detected, but the reporting limit is probably higher due to a low bias identified during the quality assurance review or data verification process.

N This result should be considered a tentative qualitative identification.

INORGANIC AND WET CHEMISTRY DATA TABLE NOTES

QUALIFIER FLAGS:

U This analyte was not detected at or above the associated reporting limit or this analyte should be considered "not-detected" since it was detected in an associated blank at a similar level.

J Quantitation is approximate due to limitations identified during the quality assurance review (data validation) or data verification process.

J+ Quantitation is approximate and may be biased high, due to limitations identified during the quality assurance review (data validation) or data verification process.

J- Quantitation is approximate and may be biased low, due to limitations identified during the quality assurance review (data validation) or data verification process.

R Unusable result; analyte may or may not be present in this sample.

UJ This analyte was not detected, but the reporting limit is probably higher due to a low bias identified during the quality assurance review or data verification process.

Lab ID Number

CHAIN-OF-CUSTODY/LAB WORK REQUEST

COC ID
COC0105014

Client: TCO File #:
Client Work Order #:
Work Order #: 10873-042-144-2030
Project Contact/Phone #: SCOTT K. MOFFETT
Lab Name: Columbia Program as of 8/1/96
Turn Around Time (TAT: Standard
Deliverable Type: Standard
Account #:

Number/Type Container	Water														
	Solid														
Volume (Per Container)	Water(ml)														
	Solid(oz)														
Preservatives (Per Container)	Water														
	Solid														
ORGANIC		Y	Y	Y	Y	Y	N	N	N						
ANALYSES REQUESTED		BTEX	TABLE 1 VOA	TABLE 1 SVOC	PCB	TPH	TABLE 1 METALS	HG	CYANIDE						

Lab ID	Client ID/Description	Sample Depth (ft.) Upper - Lower	Matrix QC Chosen MS	MSD	COC Matrix	Collected Date/Time	Indicate Method Number: 8021A	8260AW	8270BW	8081	418.1	6/7000	7470A/ 7471A	9010A/ 12
	HAG-ASB001-70001	0.00 - 1.00	N	N	S	2/7/97 9:10:45 AM	X				X			
	HAG-ASB001-70002	1.50 - 2.50	N	N	S	2/7/97 9:15:34 AM	X				X			
	HAG-ASB002-70001	0.00 - 1.00	N	N	S	2/7/97 11:00:38 AM	X				X			
	HAG-ASB002-70002	1.50 - 2.50	N	N	S	2/7/97 11:05:53 AM	X				X			
	HAG-ASB003-70001	0.00 - 1.00	N	N	S	2/7/97 10:45:34 AM	X				X			
	HAG-ASB003-70002	1.50 - 2.50	N	N	S	2/7/97 10:48:59 AM	X				X			
	HAG-ASB004-70001	0.00 - 1.00	N	N	S	2/7/97 10:15:27 AM	X				X			
	HAG-ASB004-70002	1.50 - 2.50	N	N	S	2/7/97 10:20:51 AM	X				X			
X	HAG-ASB004-72001	0.00 - 0.00	N	N	W	2/7/97 10:40:59 AM	X	X	X	X	X	X	X	X
	HAG-ASB005-70001	0.00 - 1.00	N	N	S	2/7/97 10:28:55 AM	X				X			

Methods / Special Instructions :

VOC : 8260A Table 1 (CWP); 8260A Full List
TPH : 8015 MOD; 418.1
SEMIVOC : 8270B Table 1 (CWP); 8270B Full List; PAH (CWP List); PAH (KY List)
PCB : CWP List; KY List
METALS : 6010A/7000 - Table 1 (CWP); Special List

Matrix Codes

S - Soil
SD - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WP - Wipe
X - Other
F - Fish

Date/Revisions:

1. _____
2. _____
3. _____

LAB USE ONLY

Samples were:

1) Shipped _____ or
Hand Delivered _____
Airbill # _____
2) Temperature Blank
Temp. _____ C
3) Received in Good Condition
Y or N
4) Labels Indicate Properly Preserved
Y or N
5) Received Within Holding Times
Y or N

Discrepancies Between Samples Labels and COC Record ?
Y or N

COC Tape was:

1) Present on Outer Package
Y or N
2) Unbroken on Outer Package
Y or N
3) Present on Sample
Y or N
4) Unbroken on Sample
Y or N

COC Record Present Upon Sample Reception ?
Y or N

NOTES:

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time

COLUMBIA GAS SYSTEM

Lab ID Number

CHAIN-OF-CUSTODY/LAB WORK REQUEST

COC ID
COC0105014

Client: TCO File #:
Client Work Order #:
Work Order #: 10873-042-144-2030
Project Contact/Phone #: SCOTT K. MOFFETT
Lab Name: Columbia Program as of 8/1/96
Turn Around Time (TAT: Standard
Deliverable Type: Standard
Account #:

Number/Type Container	Water														
	Solid														
Volume (Per Container)	Water(ml)														
	Solid(oz)														
Preservatives (Per Container)	Water														
	Solid														
ORGANIC		Y	Y	Y	Y	Y	N	N	N						
ANALYSES REQUESTED		BTEX	TABLE 1 VOA	TABLE 1 SVOC	PCB	TPH	TABLE 1 METALS	HG	CYANIDE						

Lab ID	Client ID/Description	Sample Depth (ft.) Upper - Lower	Matrix QC Chosen MS	MSD	COC Matrix	Collected Date/Time	Indicate Method Number: 8021A	8260AW	8270BW	8081	418.1	6/7000	7470A/ 7471A	9010A/ 12
	HAG-ASB005-70002	1.50 - 2.50	N	N	S	2/7/97 10:28:59 AM	X				X			
	HAG-ASB006-70001	0.00 - 1.00	N	N	S	2/7/97 9:50:13 AM	X				X			
	HAG-ASB006-70002	1.50 - 2.50	N	N	S	2/7/97 9:52:14 AM	X				X			
	HAG-ASB006-70003	4.00 - 5.00	N	N	S	2/7/97 10:00:07 AM	X				X			
	HAG-ASB007-70001	0.00 - 1.00	N	N	S	2/7/97 9:15:04 AM	X				X			
	HAG-ASB007-70002	1.50 - 2.50	N	N	S	2/7/97 9:20:16 AM	X				X			
	HAG-ASB008-70001	0.00 - 1.00	N	N	S	2/7/97 9:25:31 AM	X				X			
	HAG-ASB008-70002	1.50 - 2.50	N	N	S	2/7/97 9:27:02 AM	X				X			
	HAG-ASB008-70003	4.00 - 5.00	Y	Y	S	2/7/97 9:30:51 AM	X				X			
	HAG-ASB008-71002 (2)	1.50 - 2.50	N	N	S	2/7/97 9:27:32 AM	X				X			

Methods / Special Instructions :

VOC : 8260A Table 1 (CWP); 8260A Full List
SEMIVOC : 8270B Table 1 (CWP); 8270B Full List; PAH (CWP List); PAH (KY List)
METALS : 6010A/7000 - Table 1 (CWP); Special List
TPH : 8015 MOD; 418.1
PCB : CWP List; KY List

Matrix Codes

S - Soil
SD - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WP - Wipe
X - Other
F - Fish

Date/Revisions:

1. _____
2. _____
3. _____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time

COLUMBIA GAS SYSTEM

LAB USE ONLY

Samples were:

1) Shipped _____ or
Hand Delivered _____
Airbill # _____
2) Temperature Blank
Temp. _____ C
3) Received in Good Condition
Y or N
4) Labels Indicate Properly Preserved
Y or N
5) Received Within Holding Times
Y or N

Discrepancies Between Samples Labels and COC Record ?
Y or N

COC Tape was:

1) Present on Outer Package
Y or N
2) Unbroken on Outer Package
Y or N
3) Present on Sample
Y or N
4) Unbroken on Sample
Y or N

COC Record Present Upon Sample Reception ?
Y or N

NOTES:

Lab ID Number

CHAIN-OF-CUSTODY/LAB WORK REQUEST

COC ID
COC0105014

Client: TCO File #:
Client Work Order #:
Work Order #: 10873-042-144-2030
Project Contact/Phone #: SCOTT K. MOFFETT
Lab Name: Columbia Program as of 8/1/96
Turn Around Time (TAT: Standard
Deliverable Type: Standard
Account #:

Number/Type Container	Water													
	Solid													
Volume (Per Container)	Water(ml)													
	Solid(oz)													
Preservatives (Per Container)	Water													
	Solid													
ORGANIC		Y	Y	Y	Y	Y	N	N	N					
ANALYSES REQUESTED		BTEX	TABLE 1 VOA	TABLE 1 SVOC	PCB	TPH	TABLE 1 METALS	HG	CYANIDE					

Lab ID	Client ID/Description	Sample Depth (ft.) Upper - Lower	Matrix QC Chosen MS	MSD	COC Matrix	Collected Date/Time	Indicate Method Number 8021A	8260AW	8270BW	8081	418.1	6/7000	7470A/ 7471A	9010A/ 12
	HAG-ASB009-70001	3.60 - 4.60	N	N	S	2/7/97 11:23:16 AM		X	X	X		X	X	X
	HAG-ASB010-70001	5.60 - 6.60	N	N	S	2/7/97 11:48:44 AM		X	X	X		X	X	X
	HAG-ASB011-70001	0.00 - 1.00	N	N	S	2/7/97 12:18:13 PM	X				X			
	HAG-ASB011-70002	1.50 - 2.50	N	N	S	2/7/97 12:20:53 AM	X				X			
	HAG-ASB012-70001	0.00 - 1.00	N	N	S	2/7/97 9:38:40 AM	X				X			
	HAG-ASB012-70002	1.50 - 2.50	N	N	S	2/7/97 9:50:32 AM	X				X			
	HAG-ASB012-70003	4.00 - 5.00	N	N	S	2/7/97 10:15:39 AM	X				X			
	HAG-ASB013-70001	1.00 - 3.00	N	N	S	2/7/97 10:50:49 AM		X	X	X		X	X	X
	HAG-ASB014-70001	1.00 - 3.00	N	N	S	2/7/97 11:05:47 AM		X	X	X		X	X	X
	HAG-ASB015-70001	1.00 - 3.00	N	N	S	2/7/97 11:28:30 AM		X	X	X		X	X	X

Methods / Special Instructions :

VOC : 8260A Table 1 (CWP); 8260A Full List
SEMIVOC : 8270B Table 1 (CWP); 8270B Full List; PAH (CWP List); PAH (KY List)
METALS : 6010A/7000 - Table 1 (CWP); Special List
TPH : 8015 MOD; 418.1
PCB : CWP List; KY List

Matrix Codes

S - Soil
SD - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WP - Wipe
X - Other
F - Fish

Date/Revisions:

1. _____
2. _____
3. _____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time

COLUMBIA GAS SYSTEM

LAB USE ONLY

Samples were:

1) Shipped _____ or Hand Delivered _____ Airbill # _____
2) Temperature Blank Temp. _____ C
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

Discrepancies Between Samples Labels and COC Record ? Y or N

COC Tape was:

1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Reception ? Y or N

NOTES:

Lab ID Number

CHAIN-OF-CUSTODY/LAB WORK REQUEST

COC ID
COC0105014

Client: TCO File #:
Client Work Order #:
Work Order #: 10873-042-144-2030
Project Contact/Phone #: SCOTT K. MOFFETT
Lab Name: Columbia Program as of 8/1/96
Turn Around Time (TAT: Standard
Deliverable Type: Standard
Account #:

Number/Type Container	Water														
	Solid														
Volume (Per Container)	Water(ml)														
	Solid(oz)														
Preservatives (Per Container)	Water														
	Solid														
ORGANIC		Y	Y	Y	Y	Y	N	N	N						
ANALYSES REQUESTED		BTEX	TABLE 1 VOA	TABLE 1 SVOC	PCB	TPH	TABLE 1 METALS	HG	CYANIDE						

Lab ID	Client ID/Description	Sample Depth (ft.) Upper - Lower	Matrix QC Chosen MS	MSD	COC Matrix	Collected Date/Time	Indicate Method Number 8021A	8260AW	8270BW	8081	418.1	6/7000	7470A/ 7471A	9010A/ 12
X	HAG-ASB015-73001	0.00 - 0.00	N	N	W	2/7/97 11:40:52 AM	X	X						
✓	HAG-ASS005-40001	0.00 - 0.50	N	N	S	2/7/97 11:45:44 AM				X				
✓	HAG-ASS014-40001	0.00 - 0.50	N	N	S	2/7/97 11:52:15 AM				X				
✓	HAG-ASS015-40001	0.00 - 0.50	N	N	S	2/7/97 12:00:35 PM				X				
X	HAG-ASS015-42001	0.00 - 0.00	N	N	W	2/7/97 12:30:21 PM	X	X	X	X	X	X	X	X
		-												
		-												
		-												
		-												
		-												

Methods / Special Instructions :

VOC : 8260A Table 1 (CWP); 8260A Full List
SEMIVOC : 8270B Table 1 (CWP); 8270B Full List; PAH (CWP List); PAH (KY List)
METALS : 6010A/7000 - Table 1 (CWP); Special List
TPH : 8015 MOD; 418.1
PCB : CWP List; KY List

Matrix Codes

S - Soil
SD - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WP - Wipe
X - Other
F - Fish

Date/Revisions:

1. _____
2. _____
3. _____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time

COLUMBIA GAS SYSTEM

LAB USE ONLY

Samples were:

1) Shipped _____ or
Hand Delivered _____
Airbill # _____
2) Temperature Blank
Temp. _____ C
3) Received in Good Condition
Y or N
4) Labels Indicate Properly Preserved
Y or N
5) Received Within Holding Times
Y or N

Discrepancies Between Samples Labels and COC Record ?
Y or N

COC Tape was:

1) Present on Outer Package
Y or N
2) Unbroken on Outer Package
Y or N
3) Present on Sample
Y or N
4) Unbroken on Sample
Y or N

COC Record Present Upon Sample Reception ?
Y or N

NOTES:

Baker

Baker Environmental, Inc.

APPENDIX C

Digital Photographs

BAKER ENVIRONMENTAL, INC.- PHOTOGRAPHIC RECORD

SITE NAME: **Former Hagan CS** **Noble County, OH**

PHOTOGRAPH **1**	
DATE **2/7/97**	
DIRECTION **East**	
PHOTOGRAPHS BY **Baker**	

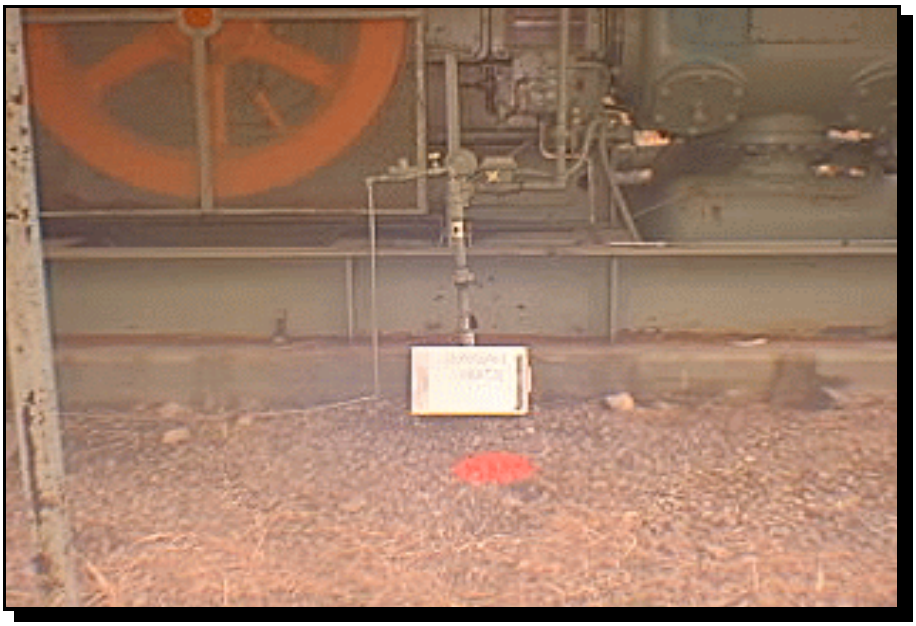
Comments: **Looking East at 1,000 gallon Pipeline Liquid UT (PRA#1) with gravel and grass cover. Air Tank/Old Pad Area (PRA#5) shown in background.**

PHOTOGRAPH **2**	
DATE **2/7/97**	
DIRECTION **Northeast**	
PHOTOGRAPHS BY **Baker**	

Comments: **Looking Northeast at Background Sample locations with grass cover. Compressor and Air Tank/Old Pad Area (PRA#5) shown in background.**

BAKER ENVIRONMENTAL, INC.- PHOTOGRAPHIC RECORD

SITE NAME: **Former Hagan CS** **Noble County, OH**

PHOTOGRAPH **3**	
DATE **2/7/97**	
DIRECTION **Southeast**	
PHOTOGRAPHS BY **Baker**	

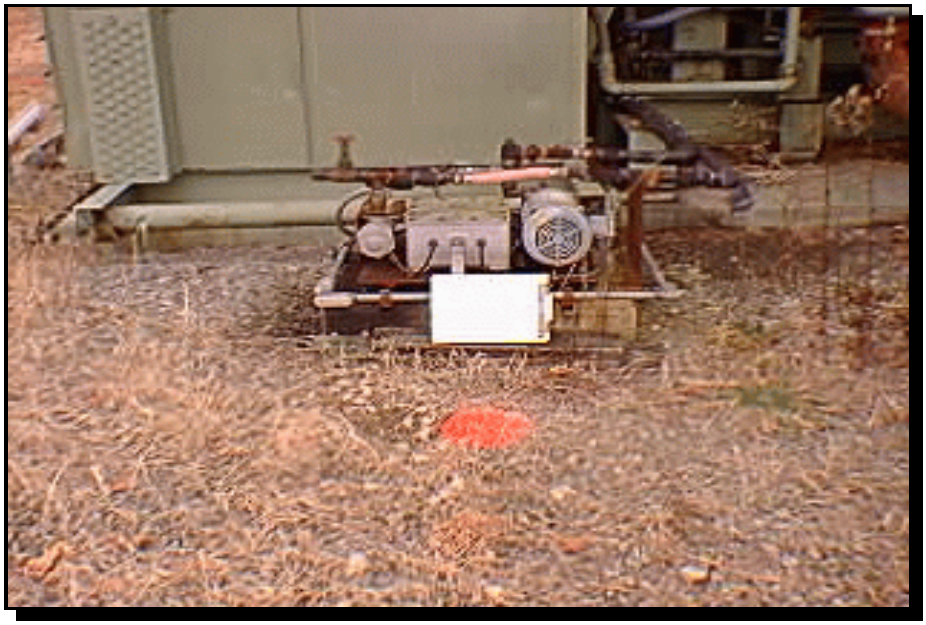
Comments: **Looking Southeast at Blowdowns/Vents (PRA#3) with Compressor shown in background.**

PHOTOGRAPH **4**	
DATE **2/7/97**	
DIRECTION **Northeast**	
PHOTOGRAPHS BY **Baker**	

Comments: **Looking Northeast at Blowdowns/Vents (PRA#3) with gravel cover. Air Tank/Old Pad Area (PRA#5) shown at right.**

BAKER ENVIRONMENTAL, INC.- PHOTOGRAPHIC RECORD

SITE NAME: **Former Hagan CS** **Noble County, OH**

PHOTOGRAPH **5**	
DATE **2/7/97**	
DIRECTION **Southwest**	
PHOTOGRAPHS BY **Baker**	

Comments: **Looking Southwest at Oil Pump Area (PRA#4) on concrete pad with surrounding gravel cover. Compressor shown in background.**

PHOTOGRAPH **6**	
DATE **2/7/97**	
DIRECTION **East**	
PHOTOGRAPHS BY **Baker**	

Comments: **Looking East at Air Tank/Old Pad Area (PRA#5) with surrounding gravel cover.**

BAKER ENVIRONMENTAL, INC.- PHOTOGRAPHIC RECORD

SITE NAME: **Former Hagan CS** **Noble County, OH**

PHOTOGRAPH

7

DATE

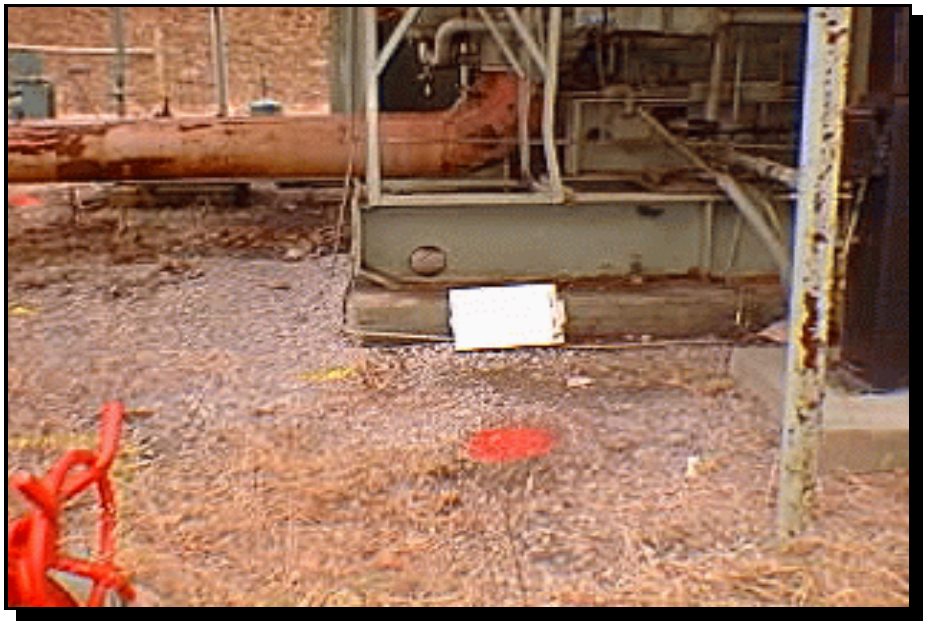
2/7/97

DIRECTION

Southeast

PHOTOGRAPHS BY

Baker



Comments: **Looking Southeast at boring for Makeup Oil AT (PRA#6) with gravel cover. AT is suspended above photo approximately seven feet above grade.**

APPENDIX D

Potentially Applicable Levels for Soils

APPENDIX D-1 (PAGE 1 OF 3)
POTENTIALLY APPLICABLE ACTION LEVELS FOR SOILS
STATE OF OHIO
COLUMBIA GAS TRANSMISSION

*** Note: VAP values must be adjusted to reflect the number of chemicals present at the site (see Ohio Table 2)**

CONSTITUENT	CAS	OHIO							FEDERAL		SELECTED LEVEL (mg/kg)	REASON
		UST (a)				VOLUNTARY ACTION PROGRAM (b)			REGION III RBC (d)			
		CATEGORY 4 >71 (mg/kg)	CATEGORY 3 70-51 (mg/kg)	CATEGORY 2 50-31 (mg/kg)	CATEGORY 1 <31 (mg/kg)	RESIDENTIAL (mg/kg)	INDUSTRIAL (mg/kg)	COMMERCIAL (mg/kg)	RES. (mg/kg)	IND. (mg/kg)		
VOLATILE ORGANICS												
2-BUTANONE (METHYL ETHYL KETONE)	78933	NA	NA	NA	NA	6600	27000	27000	47000	1200000	47000	A
4-METHYL-2-PENTANONE (METHYL ISOBUTYL KETONE)	108101	NA	NA	NA	NA	440	3800	3800	6300	160000	6300	A
1,1-DICHLOROETHENE	75354	NA	NA	NA	NA	1.5	6.3	6.4	1.1	9.5	1.1	A
1,2-DICHLOROETHANE	107062	NA	NA	NA	NA	9.6	41	41	7	63	7	A
1,1,1-TRICHLOROETHANE	71556	NA	NA	NA	NA	1200	1400	1400	1600	41000	1600	A
1,1,2-TRICHLOROETHANE	79005	NA	NA	NA	NA	NA	NA	NA	11	100	11	A
1,1,1,2-TETRACHLOROETHANE	630206	NA	NA	NA	NA	NA	NA	NA	25	220	25	A
1,1,2,2-TETRACHLOROETHANE	79345	NA	NA	NA	NA	NA	NA	NA	3.2	29	3.2	A
ACETONE	67641	NA	NA	NA	NA	4500	55000	59000	7800	200000	7800	A
BENZENE	71432	0.5	0.335	0.17	0.006	8.2	68	68	22	200	22	A
CARBON TETRACHLORIDE	56235	NA	NA	NA	NA	1.8	15	15	4.9	44	4.9	A
CHLOROBENZENE	108907	NA	NA	NA	NA	NA	NA	NA	1600	41000	1600	A
ETHYLBENZENE	100414	18	14	10	6	230	230	230	7800	200000	7800	A
METHYLENE CHLORIDE	75092	NA	NA	NA	NA	220	990	1000	85	760	85	A
TETRACHLOROETHENE	127184	NA	NA	NA	NA	94	370	370	12	110	12	A
TOLUENE	108883	12	9	7	4	520	520	520	16000	410000	16000	A
TRICHLOROETHENE	79016	NA	NA	NA	NA	77	330	330	58	520	58	A
XYLENES	1330207	85	67	47	28	1500	1500	1500	160000	4100000	160000	A
SEMIVOLATILE ORGANICS												
2-METHYLPHENOL (O-CRESOL)	95487	NA	NA	NA	NA	NA	NA	NA	3900	100000	3900	A
3-METHYLPHENOL (M-CRESOL)	103394	NA	NA	NA	NA	NA	NA	NA	3900	100000	3900	A
4-METHYLPHENOL (P-CRESOL)	106445	NA	NA	NA	NA	NA	NA	NA	390	10000	390	A
2,4-DICHLOROPHENOL	120832	NA	NA	NA	NA	NA	NA	NA	230	6100	230	A
2,4,5-TRICHLOROPHENOL	95954	NA	NA	NA	NA	NA	NA	NA	7800	200000	7800	A
2,4,6-TRICHLOROPHENOL	88062	NA	NA	NA	NA	NA	NA	NA	58	520	58	A
PHENOL	108952	NA	NA	NA	NA	26000	300000	320000	47000	1200000	47000	A
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)												
ACENAPHTHENE	83329	NA	NA	NA	NA	1900	18000	19000	4700	120000	4700	A
ACENAPHTHYLENE	208968	NA	NA	NA	NA	NA	NA	NA	NA	NA	4700	B
ANTHRACENE	120127	NA	NA	NA	NA	9500	89000	94000	23000	610000	23000	A
BENZO(A)ANTHRACENE	56553	NA	NA	NA	NA	5.5	31	32	0.87	7.8	0.87	A
BENZO(A)PYRENE	50328	NA	NA	NA	NA	0.55	3.1	3.2	0.087	0.78	0.087	A

APPENDIX D-1 (PAGE 2 OF 3)
POTENTIALLY APPLICABLE ACTION LEVELS FOR SOILS
STATE OF OHIO
COLUMBIA GAS TRANSMISSION

*** Note: VAP values must be adjusted to reflect the number of chemicals present at the site (see Ohio Table 2)**

CONSTITUENT	CAS	OHIO							FEDERAL		SELECTED LEVEL (mg/kg)	REASON
		UST (a)				VOLUNTARY ACTION PROGRAM (b)			REGION III RBC (d)			
		CATEGORY 4 >71 (mg/kg)	CATEGORY 3 70-51 (mg/kg)	CATEGORY 2 50-31 (mg/kg)	CATEGORY 1 <31 (mg/kg)	RESIDENTIAL (mg/kg)	INDUSTRIAL (mg/kg)	COMMERCIAL (mg/kg)	RES. (mg/kg)	IND. (mg/kg)		
BENZO(B)FLUORANTHENE	205992	NA	NA	NA	NA	5.5	31	32	0.87	7.8	0.87	A
BENZO(GHI)PERYLENE	191242	NA	NA	NA	NA	NA	NA	NA	NA	NA	2300	C
BENZO(K)FLUORANTHENE	207089	NA	NA	NA	NA	55	310	320	8.7	78	8.7	A
CHRYSENE	218019	NA	NA	NA	NA	550	3100	3200	87	780	87	A
DIBENZO(A,H)ANTHRACENE	53703	NA	NA	NA	NA	0.55	3.1	3.2	0.087	0.78	0.087	A
FLUORANTHENE	206440	NA	NA	NA	NA	1300	12000	13000	3100	82000	3100	A
FLUORENE	86737	NA	NA	NA	NA	1300	12000	13000	3100	82000	3100	A
INDENO(1,2,3-CD)PYRENE	193395	NA	NA	NA	NA	5.5	31	32	0.87	7.8	0.87	A
NAPHTHALENE	91203	NA	NA	NA	NA	1800	22000	24000	1600	41000	1600	A
PHENANTHRENE	85018	NA	NA	NA	NA	NA	NA	NA	NA	NA	23000	D
PYRENE	129000	NA	NA	NA	NA	950	8900	9400	2300	61000	2300	A
POLYCHLORINATED BIPHENYLS (PCB)												
TOTAL PCBs	NA	NA	NA	NA	NA	1	25	1	0.083 1 (e)	0.74 10 (e)	1	E
GLYCOLS												
ETHYLENE GLYCOL	NA	NA	NA	NA	NA	NA	NA	NA	160000	4100000	160000	A,H
INORGANICS												
ANTIMONY	7440360	NA	NA	NA	NA	NA	NA	NA	31	820	31	A
ARSENIC	7440382	NA	NA	NA	NA	6.9	86	110	0.43	3.8	0.43	A
BARIUM	7440393	NA	NA	NA	NA	5000	140000	160000	5500	140000	5500	A
BERYLLIUM	7440417	NA	NA	NA	NA	NA	NA	NA	160	4100	160	A
CADMIUM	7440439	NA	NA	NA	NA	32	300	310	39	1000	39	A
CHROMIUM III	16065831	NA	NA	NA	NA	8800	63000	65000	120000	3100000	120000	A
CHROMIUM VI	18540299	NA	NA	NA	NA	230	2800	2900	230	6100	230	A
CHROMIUM (TOTAL)	7440473	NA	NA	NA	NA	NA	NA	NA	NA	NA	230	F
CYANIDE	57125	NA	NA	NA	NA	NA	NA	NA	1600	41000	1600	A
LEAD	7439921	NA	NA	NA	NA	400	2800	1200	400 (f)	1220 (g)	400	I
MERCURY	7439976	NA	NA	NA	NA	16	230	250	23	610	20	J
NICKEL	7440020	NA	NA	NA	NA	450	3700	3800	1600	41000	1600	A
SILVER	7440224	NA	NA	NA	NA	NA	NA	NA	390	10000	390	A

APPENDIX D-1 (PAGE 3 OF 3)
POTENTIALLY APPLICABLE ACTION LEVELS FOR SOILS
STATE OF OHIO
COLUMBIA GAS TRANSMISSION

*** Note: VAP values must be adjusted to reflect the number of chemicals present at the site (see Ohio Table 2)**

CONSTITUENT	CAS	OHIO							FEDERAL		SELECTED LEVEL (mg/kg)	REASON
		UST (a)				VOLUNTARY ACTION PROGRAM (b)			REGION III RBC (d)			
		CATEGORY 4 >71 (mg/kg)	CATEGORY 3 70-51 (mg/kg)	CATEGORY 2 50-31 (mg/kg)	CATEGORY 1 <31 (mg/kg)	RESIDENTIAL (mg/kg)	INDUSTRIAL (mg/kg)	COMMERCIAL (mg/kg)	RES. (mg/kg)	IND. (mg/kg)		
TOTAL PETROLEUM HYDROCARBONS (TPH)												
DIESEL RANGE ORGANICS (DRO)	NA	NA	NA	NA	NA	(c)	(c)	(c)	NA	NA	NA	G
GASOLINE RANGE ORGANICS (GRO)	NA	600	450	300	105	(c)	(c)	(c)	NA	NA	NA	G
TPH (OTHER)	NA	1156	904	642	380	(c)	(c)	(c)	NA	NA	NA	G

Notes:
(a) - Ohio Underground Storage Tank Regulations, Division of State Fire Marshal, Bureau of Underground Storage Tank Regulations, February 14, 1996.
Values are based on a scoring system (see attached explanation).
(b) - Final Administrative Rules for the Ohio EPA Voluntary Action Program, December 16,1996. [Note: these values must be adjusted to reflect the number of chemicals present at the site (see Ohio Action Level Table 2).]
Values presented here are the lower of the soil saturation, single chemical noncarcinogens, and single chemical carcinogen values provided in the rules. Ohio has also derived Leach-Based soil values (see Ohio Action Level Table 4).
(c) - See Ohio Action Level Table 3 for TPH values.
(d) - USEPA Region III Risk Based Concentrations, October 1, 1998.
(e) - Federal Register 63(124):35384-35474 (June 29, 1998), Disposal of Polychlorinated Biphenyls (PCBs); Final Rule; 1 mg/kg for unrestricted access, high occupancy (>6.7 hours/week) (residential) surface soil, 10 mg/kg for restricted access, high occupancy (>6.7 hours/week) (industrial) surface soil.
(f) - IEUBK model results using EPA defaults for residential child (EPA OSWER Directive #9355.4-12, PB94-963282).
(g) - U.S. EPA 1996. Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil. Technical Review Workgroup for Lead. December, 1996.
BTEX - Benzene, Toluene, Ethylbenzene, Xylenes.
CAS - Chemical Abstract Service Identification Number.
NA - Not Available.
RBC - Risk-Based Concentration.
UST - Underground Storage Tank.
VAP - Voluntary Action Program.

Reasons for Selection:

A - Region III RBC, residential; VAP values are applicable only to VAP sites, and Columbia AOC sites are not eligible.
B - Due to structural similarities, Region III RBC value for acenaphthene used for this constituent.
C - Due to structural similarities, Region III RBC value for pyrene used for this constituent.
D - Due to structural similarities, Region III RBC value for anthracene used for this constituent.
E - Federal Register 63(124):35384-35474 (June 29, 1998), Disposal of Polychlorinated Biphenyls (PCBs); Final Rule; value for residential soil.
F- Numerical value for hexavalent chromium used for total chromium for screening purposes.
G - TPH standards are not appropriate for Columbia petroleum hydrocarbon releases. Columbia will characterize petroleum hydrocarbon releases through analysis of its components (BTEX, PAHs, and lead (waste oil releases only)).
H - Value used for all glycols.
I - IEUBK model results using EPA defaults for residential child (EPA OSWER Directive #9355.4-12, PB94-963282).
J - Value derived in Cleanup Action Levels for Mercury in Soils at Mercury Measuring Stations at Natural Gas Sites, ENSR, March, 1998; Active Screening Assessment Work Plan. Columbia Gas Transmission Corp. January 1996.

APPENDIX D-2 (PAGE 1 OF 3)
POTENTIALLY APPLICABLE ACTION LEVELS FOR SOILS - VOLUNTARY ACTION PROGRAM - GENERIC DIRECT-CONTACT SOIL STANDARDS (a)
STATE OF OHIO
COLUMBIA GAS TRANSMISSION

*** Note: VAP values must be adjusted to reflect the number of chemicals present at the site (a)**

CONSTITUENT	CAS	Soil Saturation (b)	RESIDENTIAL - SINGLE CHEMICAL			INDUSTRIAL - SINGLE CHEMICAL			COMMERCIAL - SINGLE CHEMICAL		
			NONCARCINOGEN (mg/kg)	CARCINOGEN (mg/kg)	GCS (c) (mg/kg)	NONCARCINOGEN (mg/kg)	CARCINOGEN (mg/kg)	GCS (c) (mg/kg)	NONCARCINOGEN (mg/kg)	CARCINOGEN (mg/kg)	GCS (c) (mg/kg)
VOLATILE ORGANICS											
2-BUTANONE (METYL ETHYL KETONE)	78933	27000	6600	NA	6600	58000	NA	27000	58000	NA	27000
4-METHYL-2-PENTANONE (METHYL ISOBUTYL KETONE)	108101	3800	440	NA	440	3800	NA	3800	3800	NA	3800
1,1-DICHLOROETHENE	75354	1600	410	1.5	1.5	5000	NA	6.3	5300	6.4	6.4
1,2-DICHLOROETHANE	107062	2900	NA	9.6	9.6	NA	41	41	NA	41	41
1,1,1-TRICHLOROETHANE	71556	1400	1200	NA	1200	9800	NA	1400	9700	NA	1400
1,1,2-TRICHLOROETHANE	79005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-TETRACHLOROETHANE	630206	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	79345	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	67641	100000	4500	NA	4500	55000	NA	55000	59000	NA	59000
BENZENE	71432	900	8.2	18	8.2	68	NA	68	68	76	68
CARBON TETRACHLORIDE	56235	990	1.8	6.5	1.8	15	NA	15	15	28	15
CHLOROBENZENE	108907	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	100414	230	1500	NA	230	13000	NA	230	13000	NA	230
METHYLENE CHLORIDE	75092	2300	1600	220	220	16000	NA	990	17000	1000	1000
TETRACHLOROETHENE	127184	370	450	94	94	5500	480	370	5900	490	370
TOLUENE	108883	520	660	NA	520	5600	NA	520	5500	NA	520
TRICHLOROETHENE	79016	820	270	77	77	3300	330	330	3500	330	330
XYLENES	1330207	1500	87000	NA	1500	1000000	NA	1500	1000000	NA	1500
SEMIVOLATILE ORGANICS											
2-METHYLPHENOL (O-CRESOL)	95487	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLPHENOL (M-CRESOL)	103394	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL (P-CRESOL)	106445	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	120832	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	95954	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	88062	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	108952	NA	26000	NA	26000	300000	NA	300000	320000	NA	320000
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)											
ACENAPHTHENE	83329	NA	1900	NA	1900	18000	NA	18000	19000	NA	19000
ACENAPHTHYLENE	208968	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	120127	NA	9500	NA	9500	89000	NA	89000	94000	NA	94000

APPENDIX D-2 (PAGE 2 OF 3)
POTENTIALLY APPLICABLE ACTION LEVELS FOR SOILS - VOLUNTARY ACTION PROGRAM - GENERIC DIRECT-CONTACT SOIL STANDARDS (a)
STATE OF OHIO
COLUMBIA GAS TRANSMISSION

*** Note: VAP values must be adjusted to reflect the number of chemicals present at the site (a)**

CONSTITUENT	CAS	Soil Saturation (b)	RESIDENTIAL - SINGLE CHEMICAL			INDUSTRIAL - SINGLE CHEMICAL			COMMERCIAL - SINGLE CHEMICAL		
			NONCARCINOGEN (mg/kg)	CARCINOGEN (mg/kg)	GCS (c) (mg/kg)	NONCARCINOGEN (mg/kg)	CARCINOGEN (mg/kg)	GCS (c) (mg/kg)	NONCARCINOGEN (mg/kg)	CARCINOGEN (mg/kg)	GCS (c) (mg/kg)
BENZO(A)ANTHRACENE	56553	NA	NA	5.5	5.5	NA	31	31	NA	32	32
BENZO(A)PYRENE	50328	31000	NA	0.55	0.55	NA	3.1	3.1	NA	3.2	3.2
BENZO(B)FLUORANTHENE	205992	NA	NA	5.5	5.5	NA	31	31	NA	32	32
BENZO(GHI)PERYLENE	191242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	207089	NA	NA	55	55	NA	310	310	NA	320	320
CHRYSENE	218019	NA	NA	550	550	NA	3100	3100	NA	3200	3200
DIBENZO(A,H)ANTHRACENE	53703	NA	NA	0.55	0.55	NA	3.1	3.1	NA	3.2	3.2
FLUORANTHENE	206440	NA	1300	NA	1300	12000	NA	12000	13000	NA	13000
FLUORENE	86737	NA	1300	NA	1300	12000	NA	12000	13000	NA	13000
INDENO(1,2,3-CD)PYRENE	193395	NA	NA	5.5	5.5	NA	31	31	NA	32	32
NAPHTHALENE	91203	NA	1800	NA	1800	22000	NA	22000	24000	NA	24000
PHENANTHRENE	85018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	129000	NA	950	NA	950	8900	NA	8900	9400	NA	9400
POLYCHLORINATED BIPHENYLS (PCB)											
PCB-1016 (AROCLOR)	12674112	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1221 (AROCLOR)	11104282	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1232 (AROCLOR)	11141165	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1242 (AROCLOR)	53469219	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1248 (AROCLOR)	12672296	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1254 (AROCLOR)	11097691	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1260 (AROCLOR)	11096825	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PCBs	NA	NA	NA	NA	1	NA	NA	25	NA	NA	1
INORGANICS											
ANTIMONY	7440360	NA	NA	NA	NA	NA		NA	NA	NA	NA
ARSENIC	7440382	NA	22	6.9	6.9	610	86	86	720	110	110
BARIUM	7440393	NA	5000	NA	5000	140000	NA	140000	160000	NA	160000
BERYLLIUM	7440417	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	7440439	NA	32	43000	32	300	170000	300	310	NA	310
CHROMIUM III	16065831	NA	8800	NA	8800	63000	NA	63000	65000	NA	65000
CHROMIUM VI	18540299	NA	230	NA	230	2800	26000	2800	2900	NA	2900
CHROMIUM (TOTAL)	7440473	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYANIDE	57125	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	7439921	NA	NA	NA	400	NA	NA	2800	NA	NA	1200

APPENDIX D-2 (PAGE 3 OF 3)
POTENTIALLY APPLICABLE ACTION LEVELS FOR SOILS - VOLUNTARY ACTION PROGRAM - GENERIC DIRECT-CONTACT SOIL STANDARDS (a)
STATE OF OHIO
COLUMBIA GAS TRANSMISSION

*** Note: VAP values must be adjusted to reflect the number of chemicals present at the site (a)**

CONSTITUENT	CAS	Soil Saturation (b)	RESIDENTIAL - SINGLE CHEMICAL			INDUSTRIAL - SINGLE CHEMICAL			COMMERCIAL - SINGLE CHEMICAL		
			NONCARCINOGEN (mg/kg)	CARCINOGEN (mg/kg)	GCS (c) (mg/kg)	NONCARCINOGEN (mg/kg)	CARCINOGEN (mg/kg)	GCS (c) (mg/kg)	NONCARCINOGEN (mg/kg)	CARCINOGEN (mg/kg)	GCS (c) (mg/kg)
MERCURY	7439976	NA	450	NA	16	230	NA	230	250	NA	250
NICKEL	7440020	NA	450	NA	450	3700	NA	3700	3800	NA	3800
SILVER	7440224	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PETROLEUM HYDROCARBONS (TPH)											
DIESEL RANGE ORGANICS (DRO)	NA	NA	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)
GASOLINE RANGE ORGANICS (GRO)	NA	NA	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)
TPH (OTHER)	NA	NA	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)

Notes:
(a) - Final Administrative Rules for the Ohio EPA Voluntary Action Program, December 16,1996. In addition to Generic Direct-Contact Soil Standards, Ohio has also derived Leach-Based Soil Standards (See Ohio Action Level Table 4).
The Cancer Risk Ratios for all of the chemicals of concern identified at the property must be added to calculate a cumulative risk ratio as follows:

$$\frac{\text{chemical a}}{\text{GCSa}} + \frac{\text{chemical b}}{\text{GCSb}} + \ldots = \text{cumulative risk ratio for direct contact soils on the property}$$

If the cumulative risk ratio exceeds one, then a MCS must be derived. This value is hand-picked, and must be calculated so that the sum of the risk ratios of the MCS to the GCS does not exceed one, as follows:

$$\frac{\text{MCSa}}{\text{GCSa}} + \frac{\text{MCSb}}{\text{GCSb}} + \ldots. \leq 1$$

A similar ratio must be derived for noncarcinogens so that the sum of the risk ratios of the noncancer MCS to the noncancer GCS does not exceed one.
(b) - Calculated by VAP using default parameters.
(c) - GCS is the lower of the soil saturation, single chemical noncarcinogen, and single chemical carcinogen values. The GCS are presented in Ohio Action Level Table 1.
(d) - See Ohio Action Level Table 3 for TPH values.
CAS - Chemical Abstract Service Identification Number
GCS - Generic Direct-Contact Standard
MCS - Multiple Chemical Direct-Contact Standard
NA - Not Available
VAP - Voluntary Action Program.

APPENDIX E

Potentially Applicable Levels for Drinking Water

APPENDIX E (PAGE 1 OF 3)
POTENTIALLY APPLICABLE ACTION LEVELS FOR DRINKING WATER
STATE OF OHIO
COLUMBIA GAS TRANSMISSION

CONSTITUENT	CAS	OHIO		FEDERAL			SELECTED LEVEL (ug/L)	REASON
		VAP (a) (ug/L)	UST (b) (ug/L)	MCL (c) (ug/L)	HAL (c) (ug/L)	REGION III RBC (e) (ug/L)		
VOLATILE ORGANICS								
2-BUTANONE (METHYL ETHYL KETONE)	78933	8600	NA	NA	NA	1900	1900	A
4-METHYL-2-PENTANONE (METHYL ISOBUTYL KETONE)	108101	NA	NA	NA	NA	2900	2900	A
1,1-DICHLOROETHENE	75354	7	NA	7	7	0.044	7	B
1,2-DICHLOROETHANE	107062	5	NA	5	NA	0.12	5	B
1,1,1-TRICHLOROETHANE	71556	200	NA	200	200	540	200	B
1,1,2-TRICHLOROETHANE	79005	5	NA	5	3	0.19	5	B
1,1,1,2-TETRACHLOROETHANE	630206	NA	NA	NA	70	0.41	0.41	A
1,1,2,2-TETRACHLOROETHANE	79345	NA	NA	NA	NA	0.052	0.052	A
ACETONE	67641	NA	NA	NA	NA	3700	3700	A
BENZENE	71432	5	5	5	NA	0.36	5	B
CARBON TETRACHLORIDE	56235	5	NA	5	NA	0.16	5	B
CHLOROBENZENE	108907	NA	NA	NA	NA	35	35	A
ETHYLBENZENE	100414	700	700	700	700	1300	700	B
METHYLENE CHLORIDE	75092	5	NA	5	NA	4.1	5	B
TETRACHLOROETHENE	127184	5	NA	5	NA	1.1	5	B
TOLUENE	108883	1000	1000	1000	1000	750	1000	B
TRICHLOROETHENE	79016	5	NA	5	NA	1.6	5	B
XYLENES	1330207	10000	10000	10000	10000	12000	10000	B
SEMIVOLATILE ORGANICS								
2-METHYLPHENOL (O-CRESOL)	95487	NA	NA	NA	NA	1800	1800	A
3-METHYLPHENOL (M-CRESOL)	103394	NA	NA	NA	NA	1800	1800	A
4-METHYLPHENOL (P-CRESOL)	106445	NA	NA	NA	NA	180	180	A
2,4-DICHLOROPHENOL	120832	NA	NA	NA	20	110	20	C
2,4,5-TRICHLOROPHENOL	95954	NA	NA	NA	NA	3700	3700	A
2,4,6-TRICHLOROPHENOL	88062	NA	NA	NA	NA	6.1	6.1	A
PHENOL	108952	9400	NA	NA	4000	22000	4000	C
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)								
ACENAPHTHENE	83329	NA	NA	NA	NA	2200	2200	A
ACENAPHTHYLENE	208968	NA	NA	NA	NA	NA	2200	E
ANTHRACENE	120127	NA	NA	NA	NA	11000	11000	A

APPENDIX E (PAGE 2 OF 3)
POTENTIALLY APPLICABLE ACTION LEVELS FOR DRINKING WATER
STATE OF OHIO
COLUMBIA GAS TRANSMISSION

CONSTITUENT	CAS	OHIO		FEDERAL			SELECTED LEVEL (ug/L)	REASON
		VAP (a) (ug/L)	UST (b) (ug/L)	MCL (c) (ug/L)	HAL (c) (ug/L)	REGION III RBC (e) (ug/L)		
BENZO(A)ANTHRACENE	56553	NA	NA	NA	NA	0.092	0.092	A
BENZO(A)PYRENE	50328	0.2	NA	0.2	NA	0.0092	0.2	B
BENZO(B)FLUORANTHENE	205992	NA	NA	NA	NA	0.092	0.092	A
BENZO(GHI)PERYLENE	191242	NA	NA	NA	NA	NA	1100	F
BENZO(K)FLUORANTHENE	207089	NA	NA	NA	NA	0.92	0.92	A
CHRYSENE	218019	NA	NA	NA	NA	9.2	9.2	A
DIBENZO(A,H)ANTHRACENE	53703	NA	NA	NA	NA	0.0092	0.0092	A
FLUORANTHENE	206440	NA	NA	NA	NA	1500	1500	A
FLUORENE	86737	NA	NA	NA	NA	1500	1500	A
INDENO(1,2,3-CD)PYRENE	193395	NA	NA	NA	NA	0.092	0.092	A
NAPHTHALENE	91203	570	NA	NA	20	730	730	J
PHENANTHRENE	85018	NA	NA	NA	NA	NA	11000	G
PYRENE	129000	NA	NA	NA	NA	1100	1100	A
POLYCHLORINATED BIPHENYLS (PCB)								
TOTAL PCBs	NA	0.5	NA	0.5	NA	0.0087	0.5	B
GLYCOLS								
ETHYLENE GLYCOL	107211	NA	NA	NA	7000	78000	7000	C,I
INORGANICS								
ANTIMONY	7440360	6	NA	6	3	15	6	B
ARSENIC	7440382	50	NA	50	NA	0.045	50	B
BARIUM	7440393	2000	NA	2000	2000	2600	2000	B
BERYLLIUM	7440417	4	NA	4	NA	7.3	4	B
CADMIUM	7440439	5	NA	5	5	18	5	B
CHROMIUM III	16065831	NA	NA	NA	NA	55000	100	K
CHROMIUM VI	18540299	NA	NA	NA	NA	100	100	K
CHROMIUM (TOTAL)	7440473	100	NA	100	100	NA	100	B
CYANIDE	57125	200	NA	200	200	730	200	B
LEAD	7439921	NA	NA	15 (d)	NA	NA	15	D
MERCURY	7439976	2	NA	2	2	11	2	B

APPENDIX E (PAGE 3 OF 3)
POTENTIALLY APPLICABLE ACTION LEVELS FOR DRINKING WATER
STATE OF OHIO
COLUMBIA GAS TRANSMISSION

CONSTITUENT	CAS	OHIO		FEDERAL			SELECTED LEVEL (ug/L)	REASON
		VAP (a) (ug/L)	UST (b) (ug/L)	MCL (c) (ug/L)	HAL (c) (ug/L)	REGION III RBC (e) (ug/L)		
NICKEL	7440020	100	NA	100	100	730	100	B
SILVER	7440224	NA	NA	NA	100	180	100	C
TOTAL PETROLEUM HYDROCARBONS (TPH)								
DIESEL RANGE ORGANICS (DRO)	NA	NA	NA	NA	NA	NA	NA	H
GASOLINE RANGE ORGANICS (GRO)	NA	NA	NA	NA	NA	NA	NA	H
TPH	NA	NA	NA	NA	NA	NA	NA	H

Notes:
(a) - Final Administrative Rules for the Ohio EPA Voluntary Action Program, December 16,1996.
(b) - Ohio Underground Storage Tank Regulations, Division of State Fire Marshal, Bureau of Underground Storage Tank Regulations, February 14, 1996.
(c) - Drinking Water Regulations and Health Advisories, Office of Water, EPA 822-B-96-002, October 1996.
(d) - Treatment Technology Action Level for Lead.
(e) - USEPA Region III Risk Based Concentrations, October 1, 1998, for tap water.
BTEX - Benzene, Toluene, Ethylbenzene, Xylenes.
CAS - Chemical Abstract Service Identification Number
HAL - Health Advisory Level, Lifetime, Adult.
MCL - Maximum Contaminant Level.
NA -Not Available
RBC - Risk-Based Concentration
UST - Underground Storage Tank.
VAP - Voluntary Action Program.

Reasons for Selection:

A - Region III RBC value, no MCL value available. VAP values are applicable only to VAP sites, and Columbia AOC sites are not eligible.
B - MCL value.
C - HAL value.
D - Treatment Technology Action Level for Lead.
E - Due to structural similarities, Region III RBC value for acenaphthene used for this constituent.
F - Due to structural similarities, Region III RBC value for pyrene used for this constituent.
G - Due to structural similarities, Region III RBC value for anthracene used for this constituent.
H - TPH standards are not appropriate for Columbia petroleum hydrocarbon releases. Columbia will characterize petroleum hydrocarbon releases through analysis of its components (BTEX, PAHs, and lead (waste oil releases only)).
I - Value applies to all glycols.
J - Region III RBC value; HAL value based on out-dated toxicity value for naphthalene.
K - MCL value for total chromium used for this constituent for screening purposes.

Baker

Baker Environmental, Inc.

APPENDIX F

CS Boring Logs

Baker Environmental

TEST BORING RECORD

PROJECT: Site Characterization at Columbia Gas Transmission - Former Hagan Compressor Station
SO NO.: 22603-HAG
BORING NO.: PRA5-Boring A
COORDINATES: EAST:
NORTH:
ELEVATION: SURFACE:
TOP OF PVC CASING:

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	--	--	2/7/97	0.0 - 5.0		--
Length	4.0 feet	---	--	--				
Type	---	---	--	--				
Hammer Wt.	---	--	--	--				
Fall	---	--	--	--				

Remarks: Airtank/Old Pad Area (BTEX, TPH)

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 1.0	S-1		HAG-ASB-006-70001	0.0			
1.5	N						
2 – 2.5	S-2		HAG-ASB-006-70002	0.0			
3 – 4.0	N						
5 – 5.0	S-3		HAG-ASB-006-70003	0.0			
6					Bottom of Boring at 5.0'		
7							
8							
9							
10							

DRILLING CO.: Subsurface, Inc.
DRILLER: Tim Mihal
BAKER REP.: Chris Kupfer
BORING NO.: PRA5-Boring A
SHEET 1 OF 1

Baker Environmental

TEST BORING RECORD

PROJECT: Site Characterization at Columbia Gas Transmission - Former Hagan Compressor Station
SO NO.: 22603-HAG
BORING NO.: PRA5-Boring B
COORDINATES: EAST:
NORTH:
ELEVATION: SURFACE:
TOP OF PVC CASING:

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	--	--	2/7/97	0.0 - 5.0		--
Length	4.0 feet	---	--	--				
Type	---	---	--	--				
Hammer Wt.	---	--	--	--				
Fall	---	--	--	--				

Remarks: Airtank/Old Pad Area (BTEX, TPH)

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 1.0	S-1		HAG-ASB-007-70001	0.0	CLAY AND FINE SAND; moist to wet		
1.5	N						
2 – 2.5	S-2		HAG-ASB-007-70002	0.0			
3 – 4.0	N				Water at 3.5'		
5 – 5.0	S-3		No Sample	---	Sample Not Collected, Water Present 5.0		
6					Bottom of Boring at 5.0'		
7							
8							
9							
10							

DRILLING CO.: Subsurface, Inc.
DRILLER: Tim Mihal
BAKER REP.: Chris Kupfer
BORING NO.: PRA5-Boring B
SHEET 1 OF 1

Baker Environmental

TEST BORING RECORD

PROJECT: Site Characterization at Columbia Gas Transmission - Former Hagan Compressor Station
SO NO.: 22603-HAG
BORING NO.: PRA5-Boring C
COORDINATES: EAST: NORTH:
ELEVATION: SURFACE: TOP OF PVC CASING:

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	--	--	2/7/97	0.0 - 5.0		--
Length	4.0 feet	---	--	--				
Type	---	---	--	--				
Hammer Wt.	---	--	--	--				
Fall	---	--	--	--				

Remarks: Airtank/Old Pad Area (BTEX, TPH)

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 1.0	S-1		HAG-ASB-008-70001	0.0	SILTY CLAY; golden brown; stiff		
1.5	N						
2 – 2.5	S-2		HAG-ASB-008-70002	0.0	Collect Duplicate at S-2 (HAG-ASB008-71002)		
3 – 4.0	N						
5.0	S-3		HAG-ASB-008-70003	0.0	Collect MS/MSD at S-3		
5					5.0		
6					Bottom of Boring at 5.0'		
7							
8							
9							
10							

DRILLING CO.: Subsurface, Inc.
DRILLER: Tim Mihal
BAKER REP.: Chris Kupfer
BORING NO.: PRA5-Boring C SHEET 1 OF 1

Baker
Baker Environmental

TEST BORING RECORD

PROJECT: Site Characterization at Columbia Gas Transmission - Former Hagan Compressor Station
SO NO.: 22603-HAG
BORING NO.: PRA3-Boring A
COORDINATES: EAST:
NORTH:
ELEVATION: SURFACE:
TOP OF PVC CASING:

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	--	--	2/7/97	0.0 - 5.0		--
Length	4.0 feet	---	--	--				
Type	---	---	--	--				
Hammer Wt.	---	--	--	--				
Fall	---	--	--	--				

Remarks: Blowdowns/Vents

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 1.0	S-1		HAG-ASB-002-70001	0.0			
1.5	N						
2 – 2.5	S-2		HAG-ASB-002-70002	0.0			
3 – 4.0	N				Water at 3.5' Sample Not Collected, Water Present		
5 – 5.0	S-3		No Sample	---	Sandstone at 5.0' 5.0		
6					Bottom of Boring at 5.0'		
7							
8							
9							
10							

DRILLING CO.: Subsurface, Inc.
DRILLER: Tim Mihal
BAKER REP.: Chris Kupfer
BORING NO.: PRA3-Boring A
SHEET 1 OF 1

Baker Environmental

TEST BORING RECORD

PROJECT: Site Characterization at Columbia Gas Transmission - Former Hagan Compressor Station
SO NO.: 22603-HAG
BORING NO.: PRA3-Boring B
COORDINATES: EAST: NORTH:
ELEVATION: SURFACE: TOP OF PVC CASING:

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	--	--	2/7/97	0.0 - 5.0		--
Length	4.0 feet	---	--	--				
Type	---	---	--	--				
Hammer Wt.	---	--	--	--				
Fall	---	--	--	--				

Remarks: Blowdowns/Vents

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 1.0	S-1		HAG-ASB-003-70001	0.0			
1.5	N						
2 – 2.5	S-2		HAG-ASB-003-70002	2.0	odor		
3 – 4.0	N				Water at 3.6'		
4 – 5.0	S-3		No Sample	---	Sample Not Collected, Water Present		
5					5.0 Bottom of Boring at 5.0'		
6							
7							
8							
9							
10							

DRILLING CO.: Subsurface, Inc.
DRILLER: Tim Mihal
BAKER REP.: Chris Kupfer
BORING NO.: PRA3-Boring B SHEET 1 OF 1

Baker Environmental

TEST BORING RECORD

PROJECT: Site Characterization at Columbia Gas Transmission - Former Hagan Compressor Station
SO NO.: 22603-HAG
BORING NO.: PRA3-Boring C
COORDINATES: EAST:
NORTH:
ELEVATION: SURFACE:
TOP OF PVC CASING:

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	--	--	2/7/97	0.0 - 5.0		--
Length	4.0 feet	---	--	--				
Type	---	---	--	--				
Hammer Wt.	---	--	--	--				
Fall	---	--	--	--				

Remarks: Blowdowns/Vents

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)

Depth (Ft.)		Sample Type & No.	Sample Rec. (Ft.,%)	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	1.0	S-1		HAG-ASB-005-70001	0.0	SILTY CLAY; brown		
	1.5	N						
2	2.5	S-2		HAG-ASB-005-70002	0.0			
3		N						
4	4.0							
5	5.0	S-3		No Sample	---	Sample Not Collected, Water Present 5.0		
6						Bottom of Boring at 5.0'		
7								
8								
9								
10								

DRILLING CO.: Subsurface, Inc.
DRILLER: Tim Mihal
BAKER REP.: Chris Kupfer
BORING NO.: PRA3-Boring C
SHEET 1 OF 1

Baker Environmental

TEST BORING RECORD

PROJECT: Site Characterization at Columbia Gas Transmission - Former Hagan Compressor Station
SO NO.: 22603-HAG
BORING NO.: PRA3-Boring D
COORDINATES: EAST:
NORTH:
ELEVATION: SURFACE:
TOP OF PVC CASING:

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	--	--	2/7/97	0.0 - 5.0		--
Length	4.0 feet	---	--	--				
Type	---	---	--	--				
Hammer Wt.	---	--	--	--				
Fall	---	--	--	--				

Remarks: Blowdowns/Vents

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 1.0	S-1		HAG-ASB-004-70001	0.0	SILTY CLAY; brown		
1.5	N						
2 2.5	S-2		HAG-ASB-004-70002	0.0			
3 4 4.0	N				Sample Not Collected, Water Present		
5 5.0	S-3		No Sample	---	Sandstone at 5.0' 5.0		
6 7 8 9 10					Bottom of Boring at 5.0'		

DRILLING CO.: Subsurface, Inc.
DRILLER: Tim Mihal
BAKER REP.: Chris Kupfer
BORING NO.: PRA3-Boring D
SHEET 1 OF 1

Baker Environmental

TEST BORING RECORD

PROJECT: Site Characterization at Columbia Gas Transmission - Former Hagan Compressor Station
SO NO.: 22603-HAG BORING NO.: PRA1-Boring A
COORDINATES: EAST: NORTH:
ELEVATION: SURFACE: TOP OF PVC CASING:

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	--	--	2/7/97	0.0 - 4.6		--
Length	4.0 feet	---	--	--				
Type	---	---	--	--				
Hammer Wt.	---	--	--	--				
Fall	---	--	--	--				

Remarks: Pipeline Liquid UST (Table 1)

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1							
2	N						
3							
3.6					Water ~ 3.5'		
4	S-1		HAG-ASB-009-70001	0.0	Sample Wet		
4.6					Spoon Refusal at 4.6' 4.6		
5					Bottom of Boring at 4.6'		
6							
7							
8							
9							
10							

DRILLING CO.: Subsurface, Inc. BAKER REP.: Chris Kupfer
DRILLER: Tim Mihal BORING NO.: PRA1-Boring A SHEET 1 OF 1

Baker Environmental

TEST BORING RECORD

PROJECT: Site Characterization at Columbia Gas Transmission - Former Hagan Compressor Station
SO NO.: 22603-HAG
BORING NO.: PRA1-Boring B
COORDINATES: EAST:
NORTH:
ELEVATION: SURFACE:
TOP OF PVC CASING:

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	--	--	2/7/97	0.0 - 6.6		--
Length	4.0 feet	---	--	--				
Type	---	---	--	--				
Hammer Wt.	---	--	--	--				
Fall	---	--	--	--				

Remarks: Pipeline Liquid UST (Table 1)

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1							
2							
3	N						
4					Water at 4.0'		
5							
5.6							
6	S-1		HAG-ASB-010-70001	0.0			
6.6					Refusal at 6.6' 6.6		
7					Bottom of Boring at 6.6'		
8							
9							
10							

DRILLING CO.: Subsurface, Inc.
DRILLER: Tim Mihal
BAKER REP.: Chris Kupfer
BORING NO.: PRA1-Boring B
SHEET 1 OF 1

Baker Environmental

TEST BORING RECORD

PROJECT: Site Characterization at Columbia Gas Transmission - Former Hagan Compressor Station
SO NO.: 22603-HAG
BORING NO.: PRA 8
COORDINATES: EAST:
NORTH:
ELEVATION: SURFACE:
TOP OF PVC CASING:

Rig: Geoprobe	MC Liners	Casing	Augers	Core Barrel	Date	Progress (Ft.)	Weather	Depth to Water (Ft.)
Size (ID)	1-5/8" I.D.	---	--	--	2/7/97	0.0 - 5.0		--
Length	4.0 feet	---	--	--				
Type	---	---	--	--				
Hammer Wt.	---	--	--	--				
Fall	---	--	--	--				

Remarks: Makeup Oil AT (BTEX, TPH)

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	Lab ID	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1 – 1.0	S-1		HAG-ASB-011-70001	0.0			
1.5	N						
2 – 2.5	S-2		HAG-ASB-011-70002	0.0			
3 – 4.0	N						
5 – 5.0	S-3		No Sample	---	Sample Not Collected, Water Present 5.0		
6					Bottom of Boring at 5.0'		
7							
8							
9							
10							

DRILLING CO.: Subsurface, Inc.
DRILLER: Tim Mihal
BAKER REP.: Chris Kupfer
BORING NO.: PRA 8
SHEET 1 OF 1

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